Textile World

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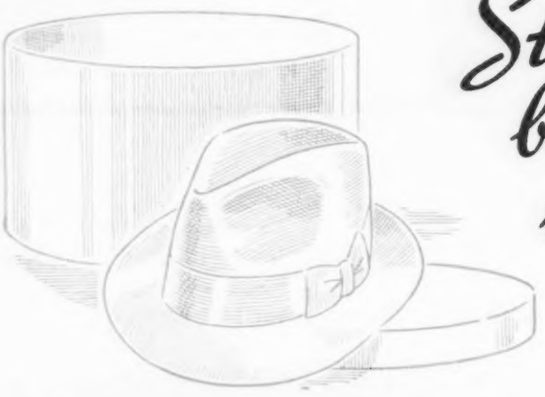
IN HAT DYEING, TOO..



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Textile World

October, 1936

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Editor: DOUGLAS G. WOOLF

A Birthday—and a Cause

ELSEWHERE in this issue (commencing on page 83) we record the highlights of the first ten years of the Cotton-Textile Institute, which celebrates its birthday this month. On this page we should like to set down the reason for the vital influence which that Institute has exerted upon its industry in such a relatively short time.

We believe the answer is this: The C.-T. I., more than any other textile organization, has undertaken to guide the making of major management policies by its members. By this we refer of course to such activities as the 55-50 plan, the elimination of night employment of women and minors; and the plan for the 40-hour week culminating in Code No. 1.

In making this inferential comparison with other textile associations, we cast no reflections upon the latter. They were developed at a time when such policy-making was not in style for a trade organization; any association executive attempting it would have committed economic suicide. In fact this was true in the first four years of the Institute's life; the industry itself was timid about entering this zone of cooperative effort and did so only when goaded on by an extreme emergency. Once having embarked upon that undertaking, however, it soon discovered therein its greatest opportunity for constructive work. Furthermore, it set the pace for other textile organizations so that, by the time NRA came, practically all of them were equipped to undertake code administration.

All of this is of importance primarily in so far as it affects the future of the Institute and its industry.

We do not imply for a moment that the specific jobs listed above are the major undertakings to be continued. We merely mean that they represent the *type* of job to be done. Policy guidance, particularly in the range of problems where social and economic factors are involved, is the inescapable duty of the trade association of the future.

What form shall such guidance take? Shall it be along the lines of intelligent regulation of wages and hours? Shall it be adjustment of production to demand? Shall it extend to the whole field of employer-employee relationships?

Each industry must answer these, and other, questions for itself. The waiting period, following NRA, has about passed—and the call now is for positive action which will consolidate and maintain the gains which all industry is now making under the spur of recovery.

The Cotton-Textile Institute must decide its future line of action now, so that it may preserve the heritage of these ten brilliant years. It has been rich in the personnel of its leaders—the late Walker D. Hines, George A. Sloan, Goldthwaite H. Dorr, Dr. Claudius T. Murchison—and in the scores of manufacturers who have given so generously and devotedly of their time and effort to the common cause.

The cause is still here: that of making a great industry a *permanently* safe place in which to work and to invest. The Coordination Conference, called for Oct. 27, represents an ideal occasion for re-dedication to that cause, and for a concerted move forward on the part of all groups enlisted in it.

The Editor Says:

New England and the N. A. C. M.

NEW ENGLAND has come through about 15 years of private grief. When we say "come through," we mean the optimism that term applies. There is a different attitude in the section now from that which prevailed five years ago. There is a spirit of both determination and hopefulness. Back of this psychological change is actual fact. Great numbers of small industries have been located in plants abandoned by erstwhile staple-manufacturing companies—and the new enterprises, producing mostly specialties with a wider profit margin, are far better suited to New England's present economy than were their predecessors.

Observers give credit—and deservedly so—to the New England Council for the important part it has played in this renaissance. Textile men know another organization which has been a bulwark of strength for this industry specifically. The National Association of Cotton Manufacturers has not had an easy road during the last decade. On the defensive, naturally, it has had to maintain a balance between the indifference of some groups and the absurd vehemence of those at the other extreme. It has succeeded in keeping that balance in a statesmanlike way.

Its role has not been merely negative however. On the positive side, it has participated in all the constructive moves of the industry during recent years—and its officers and members have devoted much of their time and energy to supporting such efforts. On the occasion of its 82nd annual meeting earlier this month, this association could well take pride in the virility it has retained in its ripe age.

On the personal side, the election of Russell T. Fisher to the presidency is a well-earned recognition. As secretary, Mr. Fisher has been through the "war" of the last ten or fifteen years. Presidents have come and gone, but he has been there "for the duration." His many friends will rejoice in the tribute paid him.

■

Fashion Futures

FASHION Futures seems to be a "natural." As we watched that great show staged by the Fashion Group at the Waldorf-Astoria last month, we found it difficult to realize that this was only the second occurrence of the event. It had all the atmosphere of a long-established annual and national style authority.

The reason for this spectacular rise to success is twofold. First there is the very apparent need for just such a medium for the selection and projection of the best in fashions. This need has existed right along, but was never really filled until Fashion Futures was created.

The second reason is the type of auspices under which this effort has been developed. There is nothing local or biased or commercial about the Fashion Group—and any one of those limitations could easily wreck Fashion Futures. The Group is composed of hundreds of leading stylists throughout the country—and therefore *can* speak with authority. Its method of selection insures the emergence of merit. Its officers and committees put into this work all the ardor and sincerity it demands.

The net result is a most constructive force in the realm of fashion—and the textile industry is one of the principal beneficiaries thereof.

■

"Wanted: A New Name"

IN our rayon issue last month, we advertised bids for a new name for staple fiber, on the basis that that term is both ambiguous and lacking in aesthetic appeal.

The first suggestion under the wire was from Herbert H. Hatch, of Hatch & Reutlinger, New York. His entry is: FIBRON.

Walter C. Taylor, of the Textile Labor Relations Board, suggests that the name "rayon" be turned around, thus producing—as out of a hat—NOYAR.

A modest little fellow—whom we shall identify merely as the guy at the end of the second row—says BLANDURA, meekly. He has a good idea here; he feels the word should suggest the principal quality of the material, and that "bland," meaning "soft," does just that. "Blandura," in fact, is Spanish for "softening."

The polls will be open for at least another month. Let's have your suggestions—and your reactions to the above suggestions.

■

Oracle, by Proxy

WE sat at the feet of one of the outstanding economists recently, and shall record here—anonymously, in line with his wish—his views on the outlook. Incidentally, we find ourself in agreement with his major theses.

The outstanding characteristic of the recovery movement today is its momentum. The difference between now and a year ago is the difference between a force which is well under way and therefore tending to carry itself along, and the business of trying to get something started.

Recovery as a major trend will continue for at least two or three years. There will be interruptions, of course, but only temporary ones. One of these temporary set-backs may come this winter in certain industries—steel particularly—but will represent merely a correction period such as we always have after a sharp up-turn. If it develops, this set-back will be of short duration. . . . 1937 looks like a good year for the automobile industry; an output of over 5,000,000 cars is indicated. . . . A high level of domestic mill consumption of cotton during the next twelve months is to be expected.

All of which adds up and makes sense, so far as we are concerned.

The above is offered without guarantee, as the view of a sane economist.

He also told us who's going to be elected, but that's confidential.

Tomorrow Always comes, says Jack Card in a letter to the editor

MILLTOWN, MASSALINA.

Editor, TEXTILE WORLD:

I'm writing you as the editor of a paper which is supposed to protect the vested interests. What I'd like to know is what are the vested interests.

The people around my town, Mr. Editor, think I'm one of the vested interests. I own a mill—such as it is and what there is of it. I once drove a Packard; now I like my Chevy pretty well. I belong to the country club. I'm sending two children through college. So, I suppose, I'm a vested interest.

But, I'm still looking for the protection that vested interests are supposed to be entitled to.

I made a little money at one time and put it back into my plant, with new machinery, etc. And then, as times got bad, my competitors whose plants weren't modern and who couldn't beat me in a fair fight, started to chisel on wages. To stay in the game, I chiseled too, and the battle of the chiselers—both voluntary and involuntary types—was something! Then came NRA, and after that the voluntary continuance of code standards.

All of that is old stuff—to you and to me. But what *isn't* old stuff is: Where do we go from here?

Just now, the industry is on the up-and-up. Economists tell us we're in for good business for a year and probably longer. For a change, most of us agree with the economists.

Sooner or later, however, we'll have a recession. It may be just one of those "correction periods" which the aforementioned economists like to talk about. What bothers me is whether we textile manufacturers will take it as a "correction period"—and sit tight on wages and prices until the situation has been "corrected"—or be consistent with past performance and get panicky. If the latter—and the odds favor the latter—will we be in for another cycle of wage-cutting, price-cutting, and other forms of gentlemanly suicide?

I suppose it's unkind of me to bring out this skeleton from our industry's closet just now when I ought to be content with the prospect of making a little money for a change. But experience has taught me that we never do anything about a situation until the situation is too bad to do anything about.

Now, I haven't the answer. I'm just a little manufacturer, trying to make some money. I'd prefer to make it honestly—as most of us would, I guess—but if worse comes to worst, I guess I'll just try to make money! And you know what that sort of psychology has brought us in the past!

I said I hadn't the answer. That's not quite correct. All of us have the answer—but we don't admit it. We *know* that the only solution is insuring automatic maintenance of labor standards. That's rather unpopular talk nowadays—and, frankly, it's as unpopular with me as with anyone. I got fed up with NRA restrictions—and I celebrated the Supreme Court's decision with the rest of them. Underneath, however, I still feel that we've got to restore something like that—and like it! If we don't, we'll have chaos again sooner or later—and won't like it.

There seem to be four schools of thought as to the form this maintenance of labor standards should take. One holds for complete Government regulation of industry. The Ellenbogen Bill was a sample of the doctrine of this school. Well, if we have an Ellenbogen Bill, you can have my plant, and all that goes with it. And I gather from what you've written on this subject that you feel the same.

Another school—sort of close kin to School No. 1—feels that we ought to turn our destinies over to the U.T.W. and let it maintain our labor standards for us. Now, it just happens that I haven't any violent feelings against labor unions as such. Some of my friends have, and we never can get together on this subject. But it also happens that I have a definitely violent feeling against the sort of union activities which Francis Gorman pulled back in 1934—and would pull again if he got the chance plus a little financial backing. I'm not theorizing on this; I went through the war and I know. Here again, I gather from your opinions expressed on your editorial page and over the radio that you and I are not far apart on this.

The third school of thought tends toward inter-State pacts. Well, I just don't believe in Santa Claus—so that's out, so far as I'm concerned. States are not going to stick their necks out. Massachusetts did once—and look what she got out of it!

So we come to the fourth school. It believes industry can put its house in order voluntarily. I can hear the chorus of "boos" already. "Gentleman's agreements don't work because there aren't enough gentlemen"—and more words to the same effect. I recognize the argument but I still think that those negative arguers forget what this "decadent" industry of ours *has* done in recent years, voluntarily and under no more pressure than that of necessity. They forget the elimination of night-employment of women and minors in the cotton industry; the voluntary shortening of hours; the formulation of Code No. 1 while other industries were waiting around to see what was going to happen!

Frankly, I think that many manufacturers who belly-ache about the futility of "gentlemen's agreements" just don't want to be gentlemen.

However, I also think we need a little pressure—not only to transform rough-necks into gentlemen pro tem, but to keep would-be gentlemen from slipping. That's where the Government comes in. I'm convinced that the right sort of program, developed in good faith by the industry to maintain its own labor standards, could get a certain form of support via the Federal Trade Commission or other agency, without delivering its destiny into the hands of such an agency. I refuse to believe that there aren't perfectly legal ways of protecting ethical manufacturers—and their workers—from unethical competitors and from their own weaknesses.

Where do we go from there? Why, to the trade associations, of course. As a matter of fact, we have better organizations of this type, and better personnel manning them, than has any industry I know of. All we need to do is to support them, financially and morally. We did, during NRA, when we thought we had to. Will we continue to do it, now, when we *know* we have to—even though, as I said before, it's unpopular to express that knowledge out loud? Will we help our association executives to achieve leadership—or will we encourage them just to be satchel-carriers, as so many association officials were in the "good old days"?

Maybe the answer is a conclave of textile manufacturers who will translate some of these ideas into action. Dr. Murchison seems to have this thought in his "Coordination Conference" within the cotton division of the industry. Can that be extended to include other branches—or else can each division start *now* to take *positive* action in the direction of sane and lasting policies?

Don't misunderstand me. I don't want to reform the world—or even the textile industry. All I want to do, as I indicated at the start of this effusion, is to get a little of the protection which we vested interests—if that is what we are—are entitled to, according to the best tradition.

The impulse behind this is a purely mercenary desire to see the present upswing in textiles converted into something approaching a permanent movement.

Don't let your readers get too cocky from today's better times to prevent their thinking of tomorrow's recession. No matter how far off "tomorrow" may be, it always comes—as I learned in childhood.

JACK CARD.

Fisher Heads N.A.C.M.

As manufacturers decide on "full-time" president

Russell T. Fisher, elevated to the presidency of N.A.C.M. at annual meeting

RUSSELL T. FISHER, secretary of the National Association of Cotton Manufacturers since 1926 and also treasurer for the last six months, was elected president of the association at the annual meeting held in Boston Oct. 7. This marks the first time in its history that the organization has not been headed by an active mill man. Mr. Fisher, who succeeds Frank I. Neild of Neild Mfg. Co., New Bedford, will continue to serve as secretary also, but his duties as treasurer will be relinquished later. Other officers elected were: Vice-presidents, C. F. Broughton of Wamsutta Mills and W. F. Staples of Ponemah Mills; directors for three years, Lincoln Baylies of Pequot Mills, George V. Meehan of Grosvenor-Dale Co., Henry G. Nichols of Otis Co., Ralph Perkins of Pilgrim Mills, and Samuel Powel of Lonsdale Co.; director for one year, Seabury Stanton of Hathaway Mfg. Co.

The menace to the industry and its employees from rapidly rising imports of Japanese cotton goods received major emphasis at the meeting. A resolution was passed urging the Administration to consider further relief from this threat "to prevent increased unemployment among textile workers in this country." Both Mr. Neild and Mr. Fisher emphasized the gravity of this situation.

Another important action taken was the passage of resolution placing the association on record as "unalterably opposed to the operation of a third shift of productive machinery, which if generally adopted would cause the loss of additional millions of dollars of capital and create continued economic distress among the workers of the industry."

Establishment of a stabilization corporation was proposed by Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, as a corrective influence in the distribution of cotton goods. This corporation, he suggested in his address at the banquet, would have the support and cooperation of mills and selling houses alike. Its business activities would not be competitive in character but designed to support the market and provide it with a steadying hand "in appropriate places and at strategic times." In addition, he proposed, this institution might cooperate in the private efforts now being made to hasten the retirement of obsolete machinery by final liquidation and by holding in check the excessive operation of marginal machinery through the use of the well-known leasing system. The Institute, he announced, has arranged for expert study of this stabilization plan during the forthcoming months.

Both technical and economic subjects were covered in the two business sessions. In the morning, with Robert J. McConnell of Whitin Machine Works, serving as chairman, Alfred Pate, treasurer of Charlton Mills, Fall River, compared the old and new methods and machinery used in warp preparation and weaving, and gave comparative cost figures. The next speaker was Charles H. Forsaith, superintendent of Jackson Mills, Nashua Mfg. Co., who has served as chairman of the committee which has drawn up a safety code for cotton mills after more than two years of work. It is hoped that the code will act as a guide or bible, stated Mr. Forsaith, which, if followed, will certainly help in reducing accidents and, therefore, insurance rates. Accident prevention, he continued, depends on some individual in the plant assuming responsibility, then selling everyone else the idea that it can and must be done. The code will assist in such selling and serve as a guide.

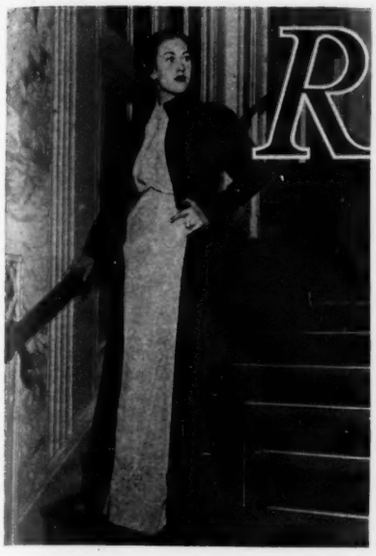
Social security, the Walsh-Healey Act and the Robinson-Patman Act occupied the spotlight at the afternoon session, which was presided over by W. O. Jelleme of Pacific Mills. John Pearson, New England Regional Director, National Social Security Board, said, in part:

"In the interests of sound personnel relationships, some consideration may be given to the deductions from employees' pay which must be made by the employer after Jan. 1. The law places the responsibility for these deductions directly upon the employer, and the whole matter of the collection is between the company and its employees. Whether or not one indorses this legislation, a better relationship between the company and its workers is bound to be maintained if a simple, factual explanation of the law is made available to the employee."

Interpretation of the various provisions will play an important part in the application of the Walsh-Healey Act, which in effect allows the Secretary of Labor to establish the hours and minimum wages of employees working on materials for government contract. C. O. Gregory, Solicitor for the United States Department of Labor, explained how some provisions work out.

Opinions on how the Robinson-Patman Act will actually work out are extremely diverse. A. B. Gunnarson, manager, Domestic Distribution Department, Chamber of Commerce of the United States, gave his views.

Frank I. Neild, Russell T. Fisher, and C. William Duncan, columnist of the Philadelphia *Public Ledger*, as well as Dr. Murchison, spoke at the banquet.



Rich Style Pageantry

Marks 1936 Edition of Fashion Futures

PREDICTIONS voiced last year at the first Fashion Futures event held by the Fashion Group that this style presentation might well become a regular national institution found confirmation when the second Fashion Futures was held Sept. 10, before a gala trade and fashion audience at the Waldorf-Astoria Hotel, New York.

Both in the dignity and dramatic beauty of its setting, and in its practical message to mills, Fashion Futures 1936 may be said to have set a new high-water mark in textile fashion presentation. The show spanned the entire field of apparel for the coming season, from the smartest new lounging pajamas and beachwear, through the daytime field of coats, suits and afternoon dresses, and building up to an impressive climax with a showing of formal wear in which glamour was keynote.

A striking aspect was the increased importance of wool in the semi-formal and formal field. Silk, rayon, linen and cotton held their own in their respective divisions. Wool, however, took a definite step forward; Paris contributed various high-fashion wool dresses both for afternoon and dinner wear, as well as a notable group of modish broadcloth coats for formal evening wear.

The show accentuated the trend toward glamor, and velvet was given a position of regal importance. Even as wool moved toward formality, so too velvet moved toward daytime use. Velvet accessories were abundant, especially in millinery and muffs. Rayon's representation was moderate, being divided between afternoon and evening apparel. Kathleen Howard of Hollywood, former Fashion Group president, served as commentator.

Consistent with the glamor influence, the colors generally were bold and brilliant—a dazzling spectrum in which purple, wine, flame and gold were dominant. Coronation influence showed in the strong leaning to variations of purple throughout the formal wear apparel. "Black and—" was a highlight in color combinations and also black was frequently seen alone.

Mill representatives present found interesting design possibilities in a group of Tyrolian costumes. All manner of prints were shown, including Paris-approved cottons for beachwear. One striking novelty was an evening dress of cotton velveteen, which fabric also was effectively used in suits and other informal apparel.

(Upper left corner) Slate blue metallized silk moire evening gown under red silk faille coat with Napoleonic capelet (International Silk Guild)

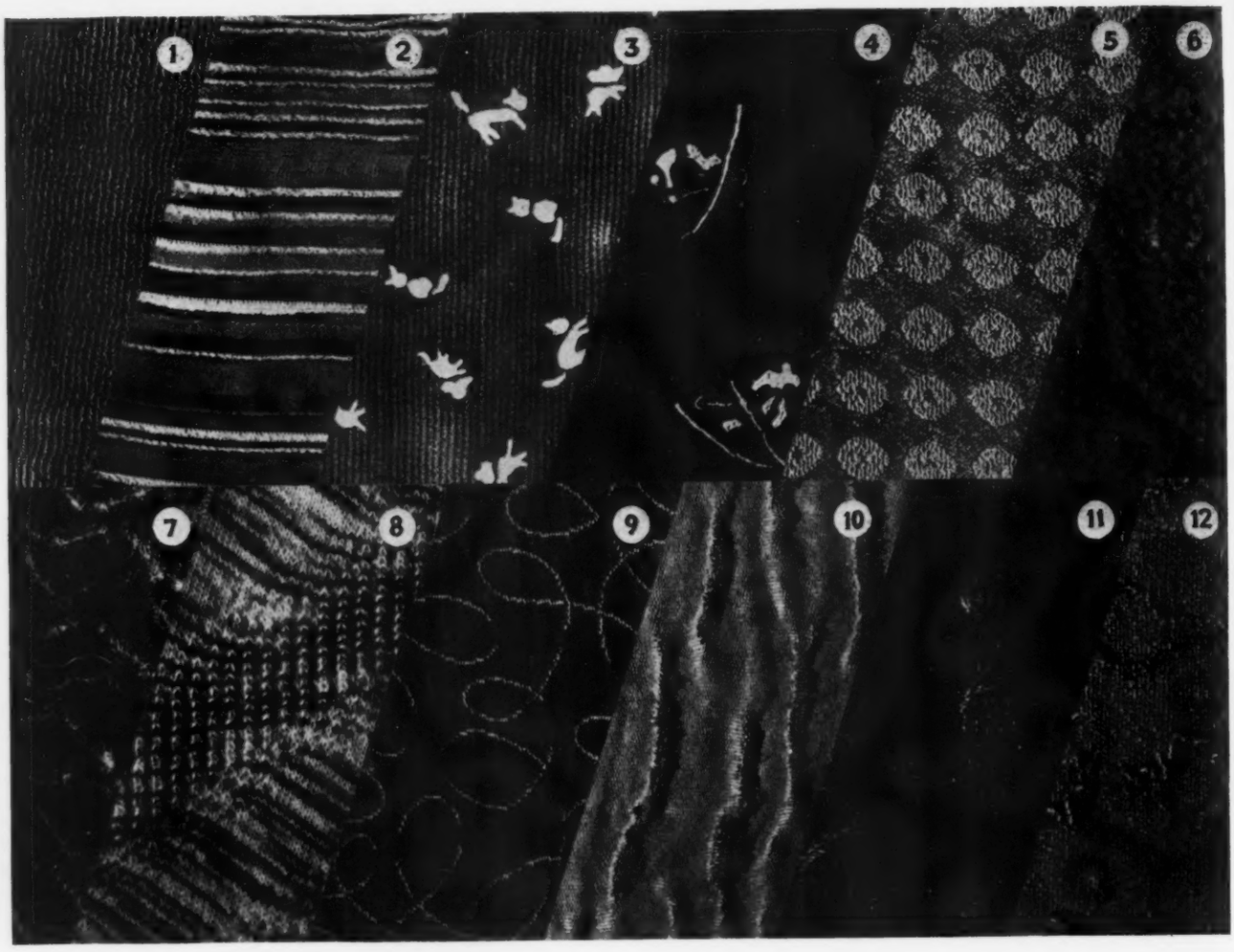
(Upper right) Peasant influence in "play clothes" shown in group of Tyrolian drindl dresses (Fashion Group)

(Upper center) Mainboucher black wool evening suit trimmed with black caracul (Associated Wool Industries)

(Above) Wired lace tunic over black velvet in Vionnet evening gown (Fashion Group)

(Above) Toast colored velveteen with brown loops and buttons in princess model (The Cotton-Textile Institute)

(At left) Alix dinner gown of cocoa brown rayon knitted jersey (Fashion Group)



Rich Contrasts

By Betty Hirshberg

Mark current Parisian fabric offerings

PARISIAN collections of fabrics for the winter season stress contrasts such as shiney and dull effects, raised and depressed patterns. Wool is generously used by such fabric houses as Rodier, A. Godde Bedin and Lesur. Staple fiber appears in interesting forms. Effects are rich and luxurious.

Lamé is used for a wider variety of fabrics than ever before ranging from delicate metallic glint to an overall sheen. It is used to accent patterns and as a pattern.

Velvets and velours continue to hold an important place in the collections. There are printed patterns on finest velvets and on cotton velours. Lacquer prints of small subjects in bright colors are a feature. Fancy velour variations are shown and various effects with uncut pile.

The lacquer or varnish print is more in evidence than ever, running from recognizable figures to a mere spattering of the fabric. The latter treatment is found in a novel tulle with chenille rosettes in the centers of the spattered areas—this fabric made by A. Godde Bedin.

There are many combinations of fibers such as cashmere and rayon, angora and rayon, mohair and wool, silk and wool. The combinations stress contrasts.

Patterns on the range of fabrics shown stress chiefly the naturalistic—little skiing figures, groups of people, etc.—and the geometric such as squares, circles, etc. They are carried out in color, by weave and by introduction of nubs, tufts, etc. One novelty has pattern printed in a phosphorescent compound on satin which makes it just visible in the dark—what a fabric for a spiritualistic seance! It is by Raymond Castelain and is called Foozia.

Cloqués and Matelassés are carried forward in new versions. Chatillon Mouly Roussel offers a double-faced lamé cloqué with rough irregular ridges of metal on the face and a fine satin back; also a reversible matelassé.

Patou stresses two new colors—Arbois and Blue Fumé, the first a brown, the second a blue.

1. Velours épinglé (Carlin). 2. Satin-striped net in brilliant colors (Carlin). 3. "Catalaque," a lacquer cat print satin (Chatillon Mouly Roussel). 4. "Skiza," sealing wax print in two colors (Raymond Castelain). 9. "Le Lasso," a matelassé (Chatillon Mouly Roussel). 10. A (A. Godde Bedin). 7. Fancy woolen (Meyer). 8. "Schmiria," a fancy knit fabric in many colors (Raymond Castelain). 9. "Le Lasso," a matelassé (Chatillon Mouly Roussel). 10. A lamé cloque with satin back (Chatillon Mouly Roussel). 11. "Fledia"—butterflies of mohair on wool ground (Raymond Castelain). 12. Irregular mohair figure on wool ground (Carlin).

Japanese Epic

By *James Wardwell Proctor*
Iselin-Jefferson Co., New York

In textiles retold by one who has been close to the scene

SO MUCH has been written and said about the competition between Japanese textile imports into this country and our own production that the various stages in the story are apt to seem dim and confused. Consequently, it is helpful to get the accompanying resume prepared by one who has been a close observer of the scene. This version is condensed from a longer article by Mr. Proctor.

The author for 22 years was connected with Wellington Sears Co. and for the last 2½ years with the Cotton-Textile Institute. He has recently joined the Iselin-Jefferson organization.

THE Japanese textile epic is still being written. The conclusion is not yet in sight, but the drift of forthcoming chapters is fairly clear.

Only a few years ago Japan's cotton manufacture was in its infancy. Fed on second hand American machinery it made a gradual start. Lately, backed by more modern equipment (much of which is now made in Japan), it has made great strides.

Since 1925 Japan has doubled her cotton spindles to a total of 10,500,000, while at the same time the American industry has declined 9,000,000 spindles to 29,000,000 and Great Britain has lost 18,000,000 spindles to shrink to a total of 42,000,000.

The Japanese can purchase American cotton, pay for it in depreciated yen, spin it into yarn, weave it into cloth, bleach it, pay a 25-30% duty and sell it in American markets at 20-25% less than production-cost of a comparable domestic product.

Recent events in the United States, though unrelated to Japan's cotton-textile expansion, have on the whole favored Japan's entry into our markets on a large scale.

Let us scan the last three years—

In March, 1933 the New Deal started its offensive against unemployment. Sharing the work through shorter hours, with increased wage rates was the essence of the NIRA. Recognizing the disadvantage of enhanced labor costs in meeting foreign competition, the framers of the act included Section 3 (e) empowering the President to limit importations of articles which threatened the purposes of the act. With an eye on the protection of that section, the cotton-textile industry launched Code No. 1, increasing labor costs some 80%.

Enter Japanese Rugs

Into this peaceful scene—enter Japanese cotton rugs. The 1933 imports were double those of 1929—result, complaint, hearings, and Presidential proclamation on June 5, 1934 that certain fees would be imposed on Japanese rugs. At the same time the Japanese agreed to limit shipments of the rugs. While all this was settling, up popped Japanese bleached goods—176,308 sq.yd. in 1929 and 6,043,345 in 1934! Again complaint and hearings—but hope for relief died with the voiding of NRA in May, 1935. Next came the invasion of cotton velveteens, rising from almost nothing previously to 1,793,557 sq.yd. in 1935. But the industry, holding as it has to NRA hours and wages, was without specific governmental aids for defence until August, 1935, when there was passed by Congress, as one of the AAA amendments, Section 22 promising similar protection against importations as was offered in Section 3 (e) of NRA, but now limited to commodities or products thereof involved in the AAA crop-control benefit-payment plan.

During this same year of 1935, the extent to which American cotton manufacturers were losing their place in overseas markets due to price advances, became increasingly evident. Notable in this shrinkage, was the decline of shipments from the U. S. to the Philippines from an average of 63,000,000 sq. meters for the 1920-1933 period, to 43,311,000 in 1934 and 35,251,000 in 1935. In the 1920-1933 period, Japan averaged only 18,321,000, but in 1934 Japan's share rose to 56,357,000 and to 72,374,000 in 1935.

Despite sympathetic efforts of the Filipinos to curb Japanese imports which almost terminated in Philippine legislation, the Washington government was pursuing a different and independent course. In brief this policy was to effect gentlemen's agreements for voluntary restriction of shipments, as instanced in the cotton-rug negotiations.

The Philippine matter eventuated unexpectedly in similar fashion. In early October, 1935, the State Department announced an agreement with the Association of Japanese Exporters to limit imports of Japanese cotton piece goods into the Philippines to 45,000,000 sq. meters annually for two years beginning Aug. 1, 1935. This agreement did not provide protection against exports to the Philippines from Japanese-owned mills in China, protection against Japan's increasing rayon piece goods shipments to the Philippines, and recognition of the fact that 10,000,000 sq. meters of American shipments of cottons are annually returned to the States with embroidery and are not part of our net shipments.

No Help from AAA

Hopes fixed on the AAA paragraph for protection of domestic industry on its home grounds, blew up with invalidation of AAA in January, 1936. Shortly prior to that time there were Washington news releases to the effect that the Japanese Ambassador had reported a plan by his nation to avoid recurrence of abnormal increases in textile shipments to the United States. The futility of this plan was evident in the Japanese cotton piece goods entries for January of 6,813,000 sq. yd., which were double those for January, 1935 and nearly 2,000,000 sq.yd. greater than the previous peak month. First quarter of 1936 recorded imports of 21,530,000 sq.yd. against 12,769,000 sq.yd. for similar period in 1935.

Congressional wheels turned again and ground out the

Soil Conservation and Domestic Allotment Act which included a paragraph like Section 22 of the old AAA. Applications under that section must clear through the Secretary of Agriculture and action by him seems destined to lengthy postponement.

Late in May, 1936, came a somewhat negative news release from Washington telling of failure to effect a gentleman's agreement with Japan limiting future shipments to 1935's great totals. With news of this failure, came definite action under tariff statute for increase in duties on certain bleached, printed, dyed or colored cottons by Presidential proclamation effective June 20, 1936. The new rates, averaging 42% greater than the old, still fell short of equalizing the price difference. Meantime the Tariff Commission continued to study the cotton velveteen situation. The maximum action permitted under the Tariff Act of 1930 might render greater assistance to domestic velveteen mills than was the case in the adjustment on bleached cloth, but nothing short of a definite quota arrangement will actually be effective.

But it is beyond bleached goods and velveteens that the bulk of the Japanese problem lies. There is the wide range of finished goods untouched by the recent tariff increases and the whole range of gray goods; there are also such specialties as corduroys, terry cloth, rayon-and-cotton table covers, bed sheets, colored table damask, fine cotton yarns, etc., on each of which there is already evidence of coming exploitation by the Japanese.

We are often told how important a customer Japan is for our raw cotton, with implication that we should be glad to surrender part of our domestic goods market by way of compensation. Curiously enough Japan's cotton takings from us have declined as her goods shipments to us have increased. In 1932 we shipped her 2,248,997 bales of cotton; 1933, 1,813,845; 1934, 1,747,530; 1935, 1,514,797. Examination of the whole picture shows that Japan gets her cotton on the cheapest market.

We are likewise told that because of a trade balance favorable to the United States, Japanese imports here must be encouraged to minimize the disadvantage to a friendly neighbor. In the seven years 1925 to 1931 the trade balance in fact favored Japan to the tune of $874,733,000, averaging over $120,000,000 yearly. Since then it has been favorable to the U. S. as follows: 1932, $910,000; 1933, $15,017,000; 1934, $91,229,000; 1935, $50,374,000. It would not seem unreasonable to let the balance run in our favor for some years to come, but such seems unlikely as the 1936 trend shows it to be much reduced. The trade balance is based largely on the relation of silk and cotton prices.

We are further told that Japan's efficiency is the vital factor in her progress in securing world trade, and that low wages are merely incidental. No one can dispute the progress which has carried Japan from inefficiency and poor equipment to a position comparable to that attained in this country many years ago. The Japanese cotton-textile industry employs over 350,000 workers of which, 85% are females, the greatest part of these between 15 and 21 years of age. Starting at a wage equivalent in our currency of 13-14c. per day, in about two years they are earning 18-23c. The operatives work for an average of only two years. Since 50% of Japan's population is agricultural and the annual population increase is about 1,000,000, it is likely there will be a plentiful supply of young female help for some years to come. Men receive about 44c. per day, but they are used in such small numbers that they raise but slightly the average wage of the textile industry. Standard work day is 8½ hours, seven days per week with two holiday minimum per month—current curtailment program gives two added holidays monthly. In addition to cash wages, workers receive substantial benefits such as lodging, food, education, etc., free or at low cost.

In contrast, the American cotton-textile industry employs over 400,000 workers of which only 40% are women. Average daily wage exceeds $3.00. Eight hours per day, five days per week is the worker's quota. Wage equivalents in benefits exist, but on a smaller scale than in Japan.

As far back as 1901 a governor of California warned against importation of Japanese labor, as a menace to American labor. Later Congress passed the act excluding Japanese laborers. In effect we are again re-living the early days of the century, except that now it is the products of that nation which are menacing our labor. What is gained to exclude Oriental laborer and yet permit the products of his work to flood our markets at prices with which the most efficient domestic producer cannot compete?

Our moderately protective tariff, our government machinery for control of trade, our view-point on trade relations are all out-moded by a new situation. The old remedies won't work. We must take stock of the facts and use effective remedies, unless our cotton textile industry is to suffer serious injuries.

Textile Mission to Japan

DIRECTORS of the Cotton-Textile Institute, at a meeting Sept. 30, approved the proposal to send a committee of American cotton manufacturers to Japan to confer with exporters in that country. It was decided that the committee would include two members of each of the the three following organizations: Cotton-Textile Institute, American Cotton Manufacturers Association and National Association of Cotton Manufacturers. Although at this writing the consummation of this plan is not absolutely assured, it seems probable that it will materialize.

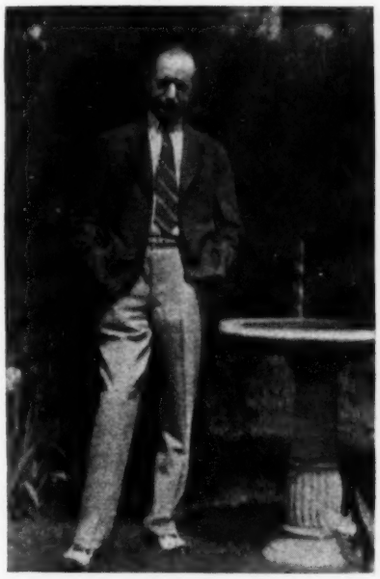
It is explained that the main purpose of the committee would be to acquaint the Japanese with the essential facts regarding the American cotton manufacturing industry, and also with our point of view as to what their trade policies should be toward the United States. Proponents of the plan hope that the committee might be able to lead Japanese exporters into voluntary action in the direction of control of export of cotton goods to this country, which would be mutually helpful to the two nations. It is emphasized however that no attempt would be made to extract any specific commitment. In other words, the committee would seek to secure an expression of policy, and to create better understanding between the two countries; consequently it is looked upon as essentially a good-will mission.

It is pointed out also that this would be the first instance of a country approaching the problem of Japanese competition through good-will methods, and that, in contrast, other nations have sought solution through unilateral treaties, leading inevitably into international ill-will.

If the plan goes through successfully, the committee will leave this country early in November and be back shortly after the first of the year.

Textile Personalities

JAMES ALONZO ("Governor") GROVES, secretary and treasurer of Wiscassett Mills Co., Albemarle, N. C., entered the mill business in an unusual manner—via railroad. From the very beginning, as a young boy, he was



fascinated by trains and imagined himself in the role of a railroad engineer when he grew up. This desire was so strong that his first job was that of freight agent in his home town in Gaston county. He was soon promoted to a larger platform at Concord, N. C. In 1902, the Southern Railway decided that he was cut out for even bigger and better platforms, and transferred him to Jacksonville, Fla.

Before leaving, he stopped in to say goodbye to J. W. Cannon, founder of Cannon Mills Co. Shaking hands, Mr. Cannon said, "Groves, I'm sorry to see you go. Keep in touch with me, for some day I may need you." In less than a year, Mr. Cannon sent for him to come to Albemarle to succeed the late J. C. Leslie who was being transferred to the New York office.

So, since April 1, 1903, Governor Groves has governed Wiscassett, with the exception of one year, 1923. That was when he obtained backing to set up the Oakboro (N. C.) Cotton Mills Co., organized and constructed according to a special idea of his which idea is still working Oakboro to capacity production. It is said that staple cotton cannot be grown too long for him to spin there. About the time he got Oakboro into operation, Charles A. Cannon, who had become head of Cannon Mills Co., asked him to come back to Wiscassett, which he did and where he has remained until the present, although he still has an active interest in Oakboro.

Mr. Groves once took a fling at politics. For two sessions, 1931-33, he occupied the Speaker's chair in the House of the North Carolina General Assembly. Mr. Groves is also an inventor, holding several patents on yarn-twisting devices.

J. FRANK MORRISSEY may run a mill in the modern manner, but his hobby is antiques. For 30 years Frank and Mrs. Morrissey have been collecting, and their home (with the exception of the kitchen—and the bathrooms) is entirely furnished with specimens of early American that are decidedly of the better type. Then, while Mrs. Morrissey has collected samplers as a special sideline, Frank has gone in for items of the great whaling days. His den has many a compass, barometer, teakwood chest, and bits of carved ivory.

From his present post as general superintendent of the two plants of Interlaken Mills at Harris and Fiskeville, R. I., Frank can look back on a steady rise since the day in 1902 when, fresh from high school, he went to work at Central Mills, Southbridge, Mass., for the fine salary of $400 per year. He was moved from one department to another and was fortunate enough to sit in on all discussions involving the purchase of machinery for a new unit in 1908, which was quite an education for a young man. The late C. D. Paige, who ran the mill, was quite a Tartar from all accounts, and Frank admits to a few low curses

in the old days, but he realizes now that it was good training. Evidently he got along, as he was made superintendent at the age of 24. He supervised the changing over of the mill to a yarn plant for Hamilton Woolen Co., and left to become superintendent of the Harris Mill of Interlaken Mills in January, 1924. Last spring he also took over supervision of the finishing plant at Fiskeville.

WILLIAM SHEPARD (Shep) NICHOLSON, secretary and treasurer of Excelsior Mills, Union, S. C., is one of the more versatile men in the industry, having at one time or another been connected with cotton mills,

hosiery mills, a bank, a hydro-electric plant, a small railroad, and a New York selling house. Furthermore, he has played the roles of operative, foreman, superintendent and manager of various hosiery mills, and acted as president of one of the more important groups of cotton mills, Union Buffalo Mills Co.

It was quite natural that Mr. Nicholson should enter the textile industry early as he is the son of Emslie Nicholson, one of the pioneer mill men in the Piedmont section. Young Shep's first job was running a ribber in the hosiery division of Excelsior Mills about 28 years ago. Taking time out to complete his education at Davidson College, he returned to the mill and since that time has held the various positions mentioned.

Much of Mr. Nicholson's time has been given to working for the good of the industry as a whole. In 1931, he became president of the Cotton Manufacturers Association of South Carolina, and during his term of office was instrumental in securing Wm. P. Jacobs, of Clinton, S. C., to serve as full-time secretary. One of the most interesting periods of his career, he said, was spent in Washington, D. C., from Sept. 25, 1933 to March 1, 1934, when he was deputy administrator in charge of the Textile Division of NRA. For several years, he has been a director of the Cotton-Textile Institute.

As to hobbies, Mr. Nicholson shoots golf in the high 70s and low 80s, his best score having been a 72. He is one of the tallest men in the industry, being 6 ft. 2½ in. and weighing nearly 200 lb.

Sixteen new control-draft drawing frames have been added

PEPPERELL STEPS UP

Efficiency and product quality by modernizing heavy-goods mill at Lindale, Ga.

THE Lindale, Ga., plant of Pepperell Mfg. Co. was built in 1895; and at the time it represented the most advanced thought and practice in mill engineering. From its beginning, this plant held a place in the first rank of American mills with respect to quality of product and operating efficiency. After a lapse of 41 years, the mill still holds its enviable position in the trade, largely because the management has remained receptive to new ideas, new developments in machinery, and new methods of manufacture.

The mill has been steadily carrying on a modernization program during the last several years which has touched every phase of activity within the mill, as well as the community life at Lindale.

When the program was begun, one of the first places to receive special attention was the preparatory department. In 1932 the two opening rooms were completely revamped and brought up to date by the installation of one-process pickers and by the introduction of Saco-Lowell No. 12 lattice openers and cleaners.

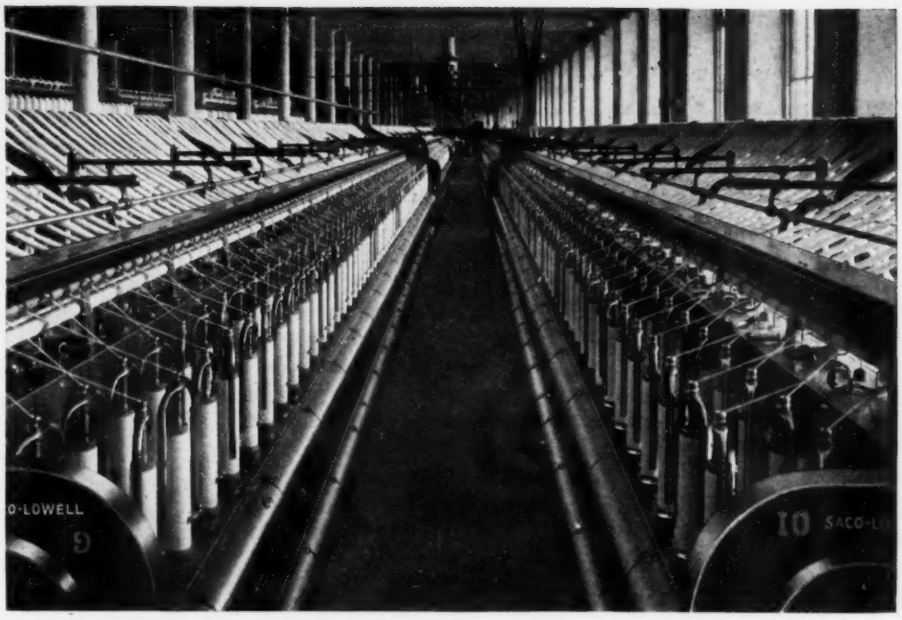
Among other improvements made in the card room was the installation of sixteen Saco-Lowell control-draft drawing frames. Six new Saco-Lowell control-draft roving frames were installed in 1935, and future plans call for the gradual changing of all roving machinery to this advanced type.

In the spinning room, 52,976 spindles of Saco-Lowell Model 32 spinning with Roth drafting were started up in 1931. These frames have 240 McMullan spindles, $3\frac{1}{2}$-in. gage, 2-in. ring, and a bobbin with $7\frac{1}{2}$-in. traverse. In addition, they have traversing thread boards, individual motor drives, ball-bearing cylinders, and case-hardened front rolls. At the same time, 6,384 long-draft units were applied to 34 spinning frames which where in such satisfactory mechanical condition that it was considered a good investment to retain them in service. In 1933, 4,224 additional spindles were modernized by the application of Roth drafting.

In 1935 further improvements made in the spinning room included installation of 75 warp spinning frames with 228 spindles, $3\frac{1}{2}$-in. gage, 8-in. traverse, and $2\frac{1}{8}$-in. ring. These frames are equipped with heat-treated spindles of the extra-large-base type, traversing thread boards, case-hardened rolls, and aluminum separators. At the same time 48 filling frames were put into production. These have 280 spindles each, $1\frac{7}{16}$-in. ring, and other equipment practically the same as the warp frames. The two installations were an important step toward completion of the modernization program.

In order to give some idea of the effect of introducing this improved equipment, it is interesting to consider the following: No. 1 spinning room produces warp-yarn ranges from 9s to 24s. The 9s are made from .625-hank single roving with a draft of 14.40. The 24s are produced from 3-hank double roving with a draft of 16. Filling in this room ranges from 2.80s to 24s. The coarser numbers, 2.80s to 6s, are made from .50-hank

Long-draft equipment is standard throughout the spinning department



Future plans call for installing control-draft roving, such as shown here, throughout the mill

single roving with draft ranges to 12. The 22.50s and 24s are made from 2½-hank double roving and 3-hank double roving with a draft of 18 and 16, respectively. Production records show that spindle speeds and roll speeds are well up to the best standards, and the work runs extremely well. It is understood that the Lindale plant produces yarns at surprisingly low cost.

In the weave shed, some 1,110 36-in. looms are being replaced with 40-in. Draper looms which are being brought down from New England in order to permit the manufacture of 36-in. Sanforized goods.

Three Sanforizing machines are in use in the finishing department, the last one having been installed about six months ago. One of the Sanforizers, a Morrison machine, is equipped with an 84-in. drum for special work.

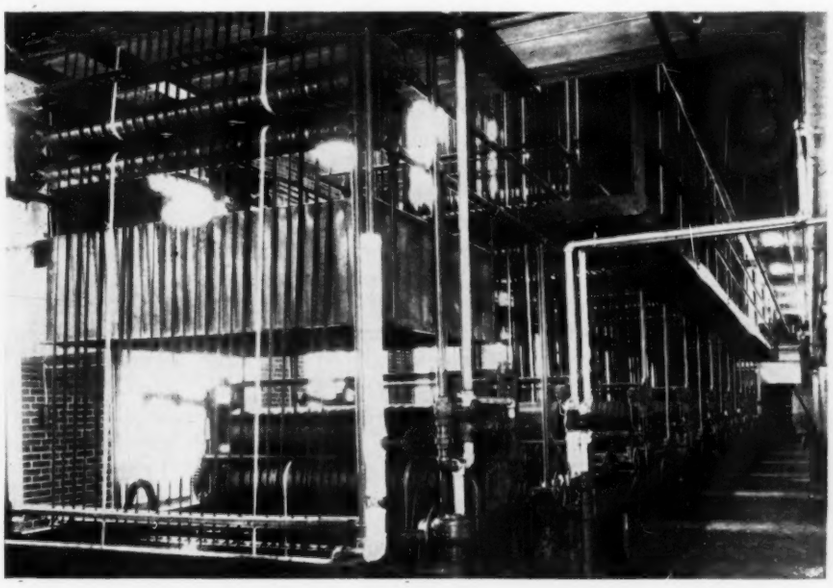
For some years the mill has been equipped with the latest type of high-speed Cocker warpers and Universal winders. Also, a unit of Barber-Colman high-speed spooling and warping is in use.

A three-story, 50x300-ft. addition was completed some months ago and now houses what is said to be the largest continuous indigo dyeing machine in existence. This machine, manufactured by Cocker Machine & Foundry Co., is located on the ground floor, where it stretches almost the entire length of the building. It is a 25-ball continuous machine equipped with six vats and dry cans and driven by a 75-hp. Allis-Chalmers slip-ring motor through a Texrope drive. The dry cans and coilers are driven through a Reeves variable-speed drive from the dyeing machine itself. Other equipment consists of creel stands for the 25 ball warps, one two-compartment boiling and cooling box complete with immersion rolls and squeeze rolls, six single-compartment indigo vats complete with immersion rolls and one pair of rubber-covered squeeze rolls, one two-compartment washing box with immersion rolls and one pair of squeeze rolls for each compartment, one 44-cylinder upright drying machine with 23x144-in. cylinders, and one 25-warp coiler. The machine is 162 ft. long and 36 ft. high from the bottom of the dye vats to the top of the oxidizing reels. Ball warps come from the warpers on the third floor of the building to the first floor, run through the machine and dry cans, then up through a slot in the floor to the coilers, then direct to long-chain beamers on the second floor, and finally to the slashers. Boiling out, dyeing, washing, drying, and coiling are all done continuously; whereas formerly there were several machines for the purpose. Production will take care of 3,000 looms on denims and chambrays.

A new type of slasher creel is being tried out in the slasher room.

An interesting piece of construction is embodied in the dental clinic, where glass bricks have been used in two walls of the small office.

Other improvements have been made in the community and village.



A special 300 ft. building was constructed to house this continuous indigo dyeing machine, said to be largest in existence

SKEIN-WINDING ANALYSIS

Shows how time studies benefit both employer and employee

By H. O. Deuel

PIECE-WORK rates, production schedules, and cost forecasts based upon past performances are as obsolete as a 1910 model automobile. In this era of intense competition and restricted profit, costs must be forecast with accuracy and certainty. Maximum production and minimum operating costs, consistent with quality workmanship and fair worker earnings, must be determined. There is no question about the necessity for cost reduction. Neither is there any question of its possibility. The only question that arises is the method to be used.

Textile men are realizing more than ever before that the correct solution of any problem must be based upon analysis. After the subject has been broken down into its separate elements, and each element examined separately, superfluous factors can be discarded, and the necessary elements reassembled into a smoothly functioning whole. By analyzing the various operations in his plant, for example, the textile manufacturer can detect the factors that are retarding his production and inflating his costs. Thus he can eliminate duplication of effort and arrive at an equitable assignment of machine units per operator.

Profits and Pay

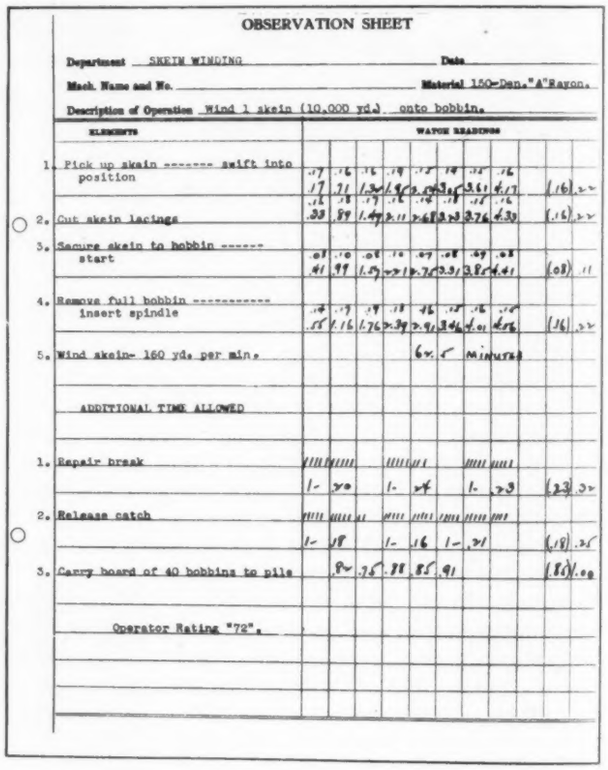
It is true that there are certain processes through which yarn must pass in preparation for the following department; but it is equally true that, over a period of time, habits have been formed in any mill which are unconsciously retarding production, earning capacity, and company profits. It is not unfair to ask the worker to do a productive day's work. At the same time, it not only is unfair, but is also a distinct loss to the company, to allocate to the individual more work than he can perform efficiently. Again, if the operator is willing to do a productive day's work, and in doing that work more efficiently can effect an economy for the company, it is not unfair to expect the company to share the profit with him to some extent by permitting him to earn an attractive percentage in excess of his base rate.

For years, the engineer in machinery manufacture has been analyzing every operation that goes into the finished product, finding the ultimate production of each machine, and calculating to a mathematical certainty the cost of the finished product before its component parts start down the production line. It is true that his problem has been somewhat different from that of the textile manufacturer. Generally speaking, machine performance can be standardized, and—inasmuch as machine performance predominates in the fabrication of iron and steel—the human element is a minor, even though important, factor.

In textile manufacture, on the other hand, the human element usually predominates, and—since the standardization of human beings is impossible—production, allocation of machine units, and setting of piece rates must be based on the performance of a "normal" operator. The normalization of operator performance does not present a difficult problem, once it is understood. Tests have proved conclusively that experienced observers, using entirely different systems, will vary no more than 2 or 3% in judging operator speed and efficiency. Hence, a fast or slow demonstration will cause no variation in the subsequent calculations.

Every job is made up of a series of separate and distinct moves or elements. These elements, when put together, form the job for which the operator is paid. Certain of these elements must be repeated in sequence for each unit of production. Together, they form the "Cycle of Work." Each operation or cycle must be broken up into elements, so that each can be examined separately to determine the elements actually necessary to the efficient performance of that operation. When these necssary elements have been determined, each must be accurately timed. Emphasis is placed upon accuracy, because absolute accuracy is essential if correct answers are to be reached. An error of 0.05 min. in a cycle of 0.5 min. duration is an error of 10%; and means that the answer is just that far from being correct.

An analysis is made in three stages in the order named:



OBSERVATION SHEET

Department SKEIN WINDING Date

Mach. Name and No. Material 150-Den. "A" Rayon.

Description of Operation Wind 1 skein (10,000 yds.) onto bobbin.

	ELEMENTS	WATCH READINGS										
1.	Pick up skein ------- swift into position	.17	.16	.16	.19	.12	.14	.15	.16			
		.17	.21	1.34	1.53	2.05	2.19	3.61	4.17			(.16) .32
		.16	.18	.17	.16	.15	.18	.16	.16			
○ 2.	Cut skein lacings	.33	.39	1.47	2.11	2.68	2.93	3.76	4.33			(.16) .32
3.	Secure skein to bobbin ------ start	.01	.00	.01	.10	.07	.08	.09	.08			
		.41	.99	1.57	2.21	2.75	3.01	3.85	4.41			(.08) .11
4.	Remove full bobbin ---------- insert spindle	.16	.17	.19	.18	.16	.12	.16	.16			
		.57	1.16	1.76	2.39	2.91	3.13	4.01	4.57			(.16) .32
5.	Wind skein- 160 yds. per min.					6	4	5	minutes			
	ADDITIONAL TIME ALLOWED											
1.	Repair break											
		1-	20		1-	24		1-	23			(.23) .32
2.	Release catch											
○		1-	18		1-	16	1-	21				(.18) .25
3.	Carry board of 40 bobbins to pile		80	.76	.78	85	91					(.80) 1.00
	Operator Rating "78".											

Fig. 1

(1) the observation, (2) the analysis, and (3) the calculation. The way in which such an analysis of the skein winding operation was carried out will be described in detail. The figures are authentic, and are based on studies of an operator winding 150-denier, A-quality rayon. It will be noted from the Observation Sheet (Fig. 1) that the work performed by the operator has been divided into two separate classifications: the regular cycle, and the additional time allowed. This division is made for clarity and convenience. The elements of the regular

cycle are so classified, because they constitute the regular movements which are repeated in each unit of production. Additional time allowed is work which the operator performs, but which appears at more or less irregular intervals and, therefore, must be apportioned to the unit of production in ratio to the frequency of its appearance. When these elements have been properly classified and timed, the "Times" must be normalized and a percentage added as an incentive for constant, maximum, operator effort.

Normal Performance

The operator upon whom the following observation was made was exceptional. With 60 as the factor for normal performance, this operator was rated at 72, or 20% above normal. The figure in the next to the last column represents the average speed of a 72 operator. In other words, the 72 operator normally will perform the first element in 0.16 min. To allow 0.16 min. and calculate the piece rate accordingly, obviously would be an injustice to the 60 or slower operator, and, as the rate must be set according to the speed of the 60 or normal operator, the times must be normalized. Thus: 0.16 min. $\times$ (72 $\div$ 60) + 15% (incentive) = 0.22 min. This figure is shown in the last column and is the time to be allowed for that element and upon which the subsequent piece-rate calculation will be based. The last element, which consists mostly of walking, was performed in normal time; hence only the incentive is added.

The Analysis Sheet (Fig. 2) needs little or no explanation. It is the condensation and summary of the Observation Sheet.

Computing Piece Rates

The total of the Times Allowed (time per unit) for each unit of production is carried over onto the Calculation Sheet, and, after deducting 10 min. for Personal Time from the total minutes in the shift, the production per spindle, number of spindles per operator, production per hour, and the piece rate are computed. The hourly base rate and subsequent calculations have been omitted for obvious reasons. In carrying out the calculation to the rate per pound, one should bear in mind that the hourly base rate should be set at the amount desirable for normal operator earnings. Unless the present rate is uncommonly high, a 10% increase will produce highly gratifying results for both employer and employee.

***TEXTILE MANUFACTURERS** are showing a growing interest in job analysis and time study as a means for increasing worker earnings and mill profits. Published information on the subject as applied specifically to textile operations is all too rare. We are pleased, therefore, to present this article by Mr. Deuel, Elmira, N. Y., textile engineer and author of "Fundamentals of Industrial Engineering as Applied to Silk and Rayon Manufacture," a correspondence course.*

ANALYSIS SHEET

Department SKEIN WINDING Date

Mach. Name and No. Material 150-Den."A" Rayon.

Description of Operation Wind 1 skein (10,000 yd.) onto bobbin.

No.	ELEMENTS	TOTAL TIME	TIME PER UNIT
1.	Pick up skein, snap 2 or 3 times, place skein on swift and place swift in position on frame		.220
2.	Cut skein lacings		.220
3.	Secure skein end to bobbin, place bobbin in position on frame and start		.110
4.	Remove full bobbin from position on frame, remove spindle from bobbin and place bobbin on board. Pick up empty bobbin and insert spindle.		.220
5.	Wind skein onto bobbin. 160 yd. per min. + 5 % slippage		66.630
	ADDITIONAL TIME ALLOWED		
1.	Repair break 1 time @ 8 bobbins	.32	.040
2.	Release catch(latched end) 1 time 10 bobs.	.25	.025
3.	Carry board of 40 bobbins to pile & return to frame 1 time 40 bobbins	1.00	.025
	Actual Total=		66.490
	Time Allowed		
	Time Paid		
	Production Per Hour		

Fig. 2

CALCULATION SHEET

Department SKEIN WINDING Date

Mach. Name and No. Material 150-Den."A" Rayon.

Description of Operation Wind skein (10,000 yd.) onto bobbin.

MACHINE CHANGE	TIME PER CHANGE	TIME ALLOWED PER DAY

MACHINE CHANGE ALLOWANCE = MIN.

PERSONAL TIME ALLOWANCE = 10.00

=

=

MINUTES PER DAY 480.00 - 10.00 MIN. = 470.00 ACTUAL WORKING MIN

$\frac{470.00}{66.49}$ A.W.M. / TOTAL ANALYSED TIME = 7.068 TOTAL bobbins PER DAY 1 spl.

$\frac{66.49}{\text{LOAD}} + \frac{\text{T.A.T.}}{\text{UNLOAD}} + .86$ OTHER WORK = 77.3 No. OF SPINDLES CAN BE RUN

65. No. OF SPLS. ASKED

(15% walking time allowance)

$\frac{480.00}{65.}$ MIN. PER DAY / No. OF SPLS. ASKED $\times \frac{\text{P.T.D. PER SPL.}}{7.068}$ = 1.0448 MIN. A PER bob. 65 spls.

$\frac{60 \text{ MIN.}}{1.0448 \text{ T.A.T. bob. } 65 \text{ spls.}}$ = 57.4 bobs. PROD. PER HOUR 65 spls.

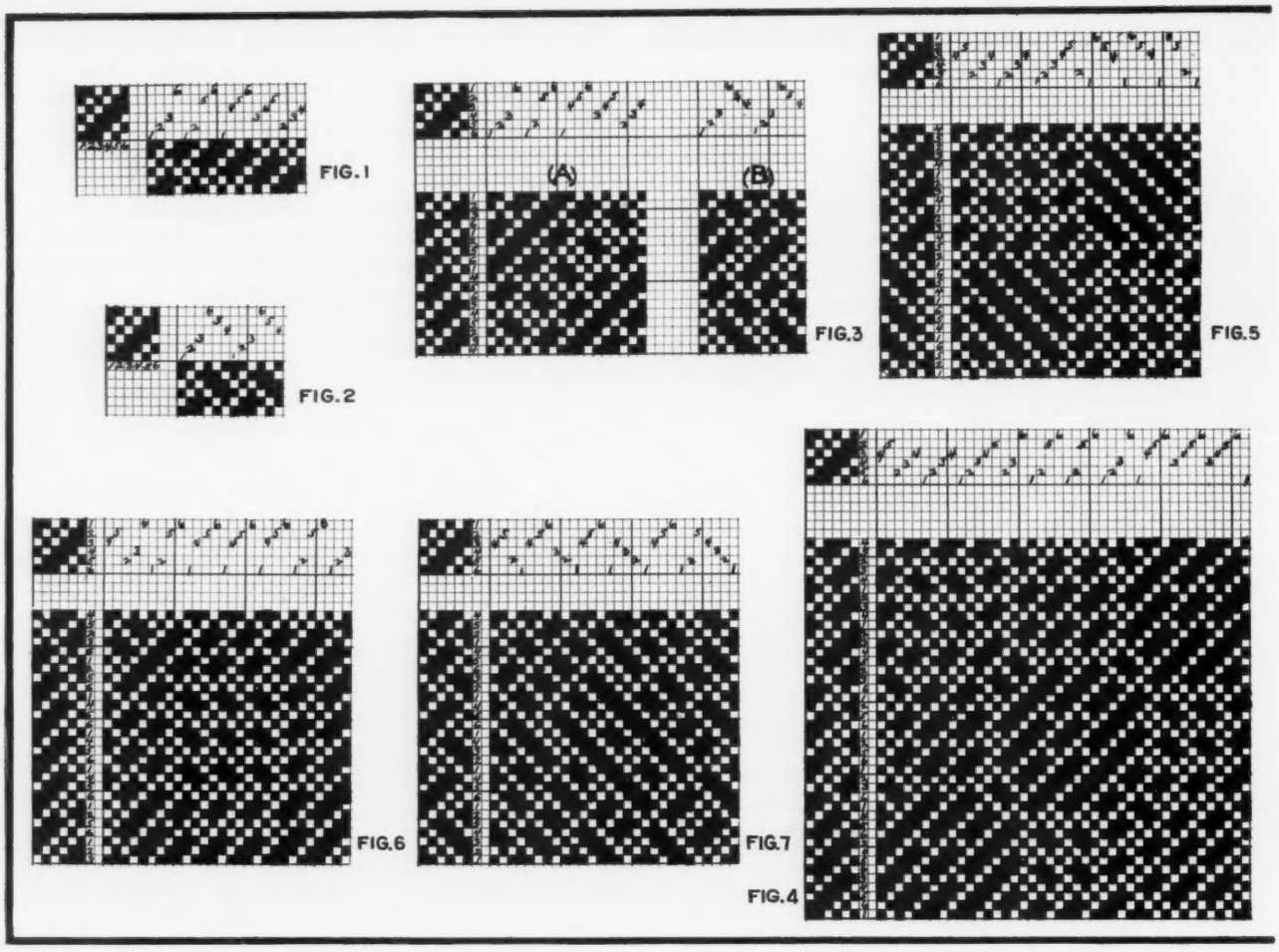
$\frac{(?) \text{ BASE RATE}}{57.4 \text{ bobs. PER HOUR}}$ = per hundred bobs. HOUR RATE

OLD RATE

REMARKS: Rate per hundred bobs. (?) / 33 lb. per 100 bobs. = Rate per lb.

Fig. 3

No attempt has been made to point out numerous wastes and losses that can be detected and eliminated in the course of an analysis of this type. A large number of the textile mill losses are individually small, but when accumulated, reach surprising amounts. Suffice to say that, while it is not the contention of the author that this method is perfect, or that perfection can be reached through its application, it is practicable, however, and can be productive of tremendous economies. It will supply that indispensable basic information necessary to increase worker earnings and mill profits.



WHEN IDEAS ARE EXHAUSTED

Open new world of skip-twill effects by varying the threads in consecutive lines of draft

By William Higgins

Instructor, State Trade School, Manchester, Conn.

THE usual method of making skip twills is to start with basic twills—such as two up, two down; three up, three down; three up, one down, one up, one down; four up, four down; etc.—as motifs, arranging the draw in such a manner that the twill line is broken at regular intervals. This break is produced by drawing any predetermined number of threads straight draw and skipping one less than half the number of harnesses in the basic weave. For example, if the basic weave has six harnesses, skip two; if it has eight harnesses, skip three; etc. This standard method of producing skip twills has only one fault, which is that ideas are rapidly exhausted. The reason for this is that the draw is not flexible enough to create change.

The first illustrations, Figs. 1, 2, and 3, are made by the standard method. Fig. 1 is a regular skip twill with a three-up, one-down, one-up, one-down twill as the motif; in this case the motif and the chain are the same, and the rest of the figure is made with three forward and skip two as the plan of the drawing-in draft. Fig. 2 is a regular skip twill with the same motif but with the fourth, fifth, and sixth threads reversed. Fig. 3 is a development from the motif, in which the draw of Fig. 1 is used to create the chain and the same draw to create design *A*. With the same chain and the draw from Fig. 2, design *B* is created. That is about the limit of the designs one can produce from the same motif using the conventional method of making skip twills.

Designs Become More Interesting

It is thought by many designers that, if one does not have the same number of threads in the twill line after each skip, the design will not be symmetrical. This is not so. The reverse is true. The designs become more interesting.

Let us see what develops if we take a series of num-

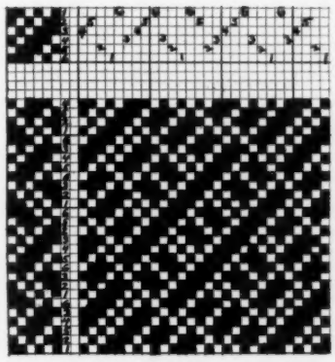


FIG. 8

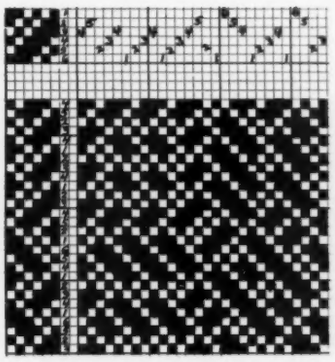


FIG. 9

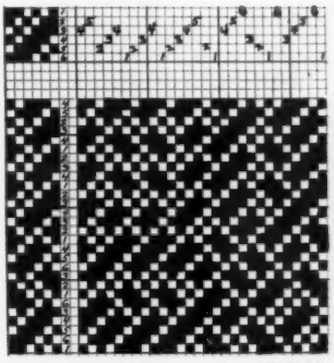


FIG. 10

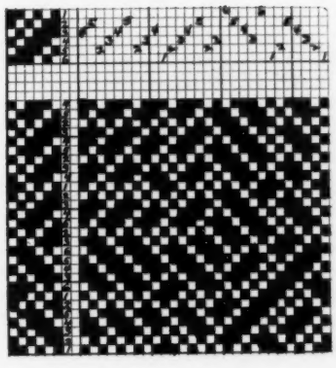


FIG. 11

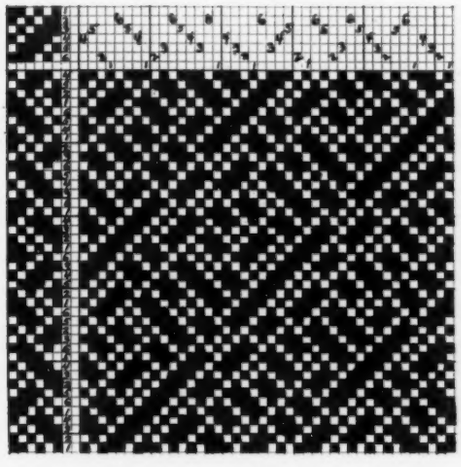


FIG. 12

bers like 2, 3, 4, and 5, letting each number represent the threads in the twill line after each skip.

Fig. 4 represents a development from the three-up, one-down, one-up, one-down motif, using the same plan for both the chain and the design. The design developed in this manner has an interesting diagonal effect.

The interesting part of this type of development is that the draw may be arranged and rearranged to make several designs, each one quite different from the others. Figs. 5 to 12 are illustrations of what may be accomplished by using various arrangements of the draft of Fig. 4.

Fig. 5 represents a rearrangement of the series 2, 3, 4, 5. In the first half of the draw the threads are drawn forward and in the last half reversed—2, 3, 4, 5 forward, 5, 4, 3, 2 reverse. Note the odd checkerboard effect produced by this arrangement.

Fig. 6 arranges the development to read 2, 2, 3, 3, 4 4, 5, 5, with all the threads drawn forward. There is an interesting shading effect in this design.

It is thought by many designers that if, in making the drawing-in drafts for skip twills, one does not put the same number of threads in the twill line after each skip, the design will not be symmetrical. The reverse is true; and, as Mr. Higgins ably proves in this enlightening article, variations in the lengths of the twill lines make designs that are "different" and more interesting.

Fig. 7 arranges the draw 2 forward, 2 reverse, 3 forward, 3 reverse, 4 forward, 4 reverse, 5 forward, 5 reverse. It will be noticed that the resulting design has two twill effects, one to the right and one to the left.

Fig. 8 arranges the threads in the development 2, 3, 4, 5, 5, 4, 3, 2, but reverses the draw of each alternate group of threads after the skip. The design in this case shows, besides the very definite twill to the right, an elliptical shadow that enhances the appearance of the design.

Quarter-Moon Effect

Fig. 9 arranges the first half of the draw of the 2, 3, 4, 5 development forward and the last half 5, 4, 3, 2, with the alternate groups reversed. Note the quarter-moon effect in this design.

Fig. 10 arranges the development 2, 3, 4, 5, 2, 3, 4, 5, with the first half of the draw forward and alternate groups of the last half reversed.

Fig. 11 rearranges the development 2, 3, 4, 5 so that it reads 2, 4, 3, 5, and the first half of the draw is forward with alternate groups of the last half reversed.

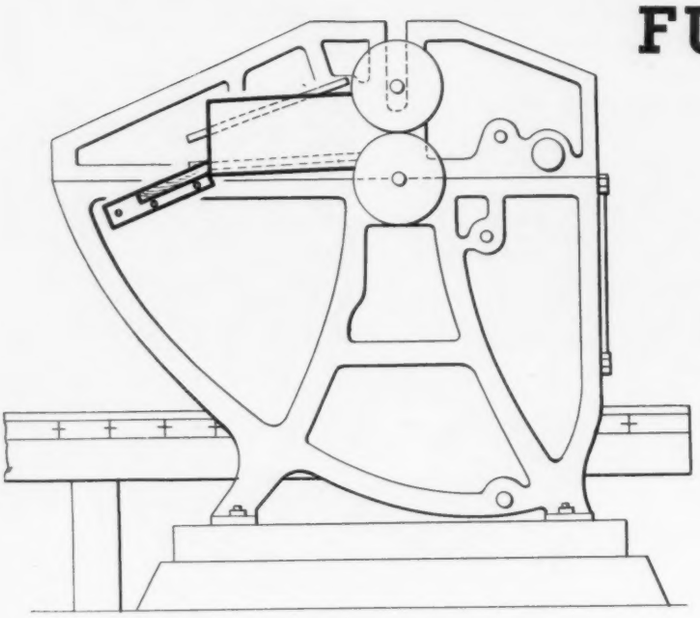
Fig. 12 is a mongrel arrangement.

All the designs have been developed from the same motif for the purpose of showing the adaptability of the draw to change. Each design produced has individuality and is practical for weaving. In every case a careful check will reveal that the take-up in weaving in all of these designs is approximately the same as in the original basic weave.

Try this method of developing original weaves. The results will more than repay the effort.

FOR FULL SPEED— FULL SLOWLY

By David W. Welsh



Removable side boards stop tangling or knotting of the goods.

IT is safe to say that 75% of all the damage done to goods during fulling is due to excessive machine speeds. For every 5 revolutions that a fulling mill is run above 130 r.p.m., add 1% to the damage up to 150 r.p.m.; then make it 2% for every 5 revolutions above that outlandish speed. "Drive slower and save a life" is a good motto for automobile drivers. "Run slower and save a yard" is an equally good motto for fulling-mill operators. In opposing the almost universal urge for speed, one will find that there is nothing to lose, but much to gain, in the fulling department.

The speed of the rolls is not the important factor in felting; the main duty of the rolls is the mechanical act of pushing the goods into the trap, where the buckling up and the crowding in of the cloth to a slower steady push puts the felt in faster than if the goods are rushed through pell-mell. Any Doubting Thomas can readily prove this to his own satisfaction by a practical demonstration.

Knock-Offs Reduced

Every knock-off of the stop motion at fast speed means damage to the goods; but at 125 to 130 r.p.m., knock-offs are reduced 70%, which is a wonderful help, as there is seldom a damage even when a knock-off does occur.

A mill making 13½-oz. fine cassimeres was averaging 10% of seconds from fulling-mill damages, besides 5% of remnants. The owner happened to make a visit to another mill making the same fabric. While being escorted through the plant, he stopped at the fulling mills, where he lingered and seemed amazed at the slow speed of the mills—125 r.p.m.

"Can't see how you ever full at that speed," he ventured.

"How long do you take to full your goods?" asked the finisher.

"Only 3½ hr.," came the quick response.

"Suppose you time this set starting up now," suggested the finisher.

When the goods were ready to take out, the elapsed time was 2¾ hr. The visitor then inquired about the percentage of seconds, and was informed that in a run of 3,000 pieces just put through, there had been only three fulling-mill damages and that each of these was due to a sewer's needle having been left in the goods. He was told also that the remnant toll had been kept down to ½ of 1%. Nonplussed, but converted, the visitor declared he was going home and make a big change in things in his own plant. The big change was a reduction in fulling-mill speeds from 175 to 125 r.p.m.

Today we hear much about high-speed or high-production fulling mills—new large types which take double the load and full in half the time. Undoubtedly a decided gain in production can be obtained with these new mills.

This gain in production is due to the increased size, which permits heavier loads. However, if the new machines are speeded up to over 130 r.p.m., there is the same danger of damage and actually more time consumed in fulling. On these large mills a knock-off seldom happens if the machine is run at 130 r.p.m., while they are plentiful and damage producing at 160 r.p.m. [This statement applies particularly to woolens and worsteds, most authorities advocating higher speeds on camel's hair fabrics—*Editor.*] The slower speed fulls faster, felts firmer, covers better, and shows less pull-out in the subsequent operations needed to produce the desired finish.

A Useful Device

One common cause for the goods knotting and snapping up the stop-motion is the way they have of falling over themselves as they leave the trap and strike the back slope of the mill. On short traps, this is more likely to happen. This trouble can be corrected by installing removable slide-boards behind the outer end of the trap, as shown in the accompanying sketch. These slide-boards are held in place by cleats fastened to the sides and the center board of the mill, and can be lifted out when running in a new load. When the goods have been soaped up and thoroughly saturated, and are not so bulky, the slide-boards are again put in place. In this way, the goods are carried farther back in the mill, dropping where their position is not altered enough to cause a tangle or to become knotted and pulled up with a jerk at the stop motion. This appliance is a simple, but effective, device.

Throwing department in Oakhurst plant of Hudson Silk Hosiery Co.—Air conditioning and modern system of artificial lighting permit windowless construction.

WINDOWLESS MILL

New plant of the Hudson Silk Hosiery Co. exceeds expectations of its designers

"WHY have windows?" That was the question which the officers of Hudson Silk Hosiery Co. asked themselves when they decided to build a new plant. They reasoned as follows: Nearly all textile establishments require artificial lighting both day and night; recent tests have shown that carefully regulated artificial lighting increases the efficiency of the operatives and results in higher production rates than are obtained with natural lighting; absence of windows would permit better control of temperature and humidity conditions; modern air conditioning makes windows unnecessary for ventilation.

It was decided, therefore, that the advantages of windowless construction would more than offset the somewhat greater expense of solid walls and added consumption of electricity. As a result, the new Oakhurst plant of the company, at Charlotte, N. C., is unique in textile mill construction—a building without windows in the manufacturing rooms.

The mill is divided into two units under the same roof, containing the knitting and the throwing departments, respectively. Between the two departments is a covered driveway through which trucks can be driven and loaded regardless of the weather. The throwing plant, the newest of the units, is 110x400 ft., constructed of brick and steel, with no windows in the side walls. There are, however, glass-covered apertures in the sides of a dormer arrangement on the roof through which considerable natural light diffuses. This glass is of special composition designed to filter out heat rays from the sunlight. The roof is insulated with 1 in. of cork, which helps greatly in keeping temperatures and humidity conditions constant and prevents condensation on the ceiling. Air conditioning equipment was installed in the throwing department by Cooling & Air Conditioning Corp., a division of B. F. Sturtevant Co.; in the knitting department, by Carrier Engineering Corp. Temperature and humidity are controlled with Foxboro instruments.

The knitting department, 110x136 ft., is of the same general construction as the throwing department, with the exception of several windows in the front containing the same type of opaque glass used in the dormers. There is a possibility that glass brick or tile may be substituted for these windows.

With reference to the effect of the solid brick walls and cork insulation on temperature conditions, the interior of the mill is 10 to 12°F. cooler than the average outside temperature during the summer months. On one of the hottest days last summer, temperature in the mill was 84°F. and humidity 65%. During the winter months, temperature averages 83°F. and humidity 68%. Temperature in the knitting department is slightly lower than in the throwing department, because of the higher humidity in the former. An important feature of this windowless construction is that there is no condensation on the walls.

It is interesting to note that, despite the windowless construction of the side walls, enough light often comes through the dormers of the throwing department to make artificial light unnecessary, especially in the middle of the day. Due to the nature of the work, the knitting department requires artificial light practically all of the time.

The throwing department at present contains about 3,700 spindles of skein-winding equipment, 2,800 spindles of Atwood 5B twisting, 3,800 spindles of other twisting, and 700 spindles of cone winding. Production is about 11,000 lb. per 80-hr. week. There is additional space in the building for sufficient machinery to double this output. One end of the building is so constructed that a partition can be put up when desired and soaking equipment installed. Present equipment, which permits soaking about fifteen bales of silk a day, is located at the Brevard St. plant.

The knitting department contains 24 of the latest model 45-gage, 24-head, Reading full-fashioned leggers, and

8 footers to match. There are 96 additional full-fashioned machines in use at the Brevard St. mill.

The front end of the building housing the throwing machinery contains the shipping department, the superintendent's office, a cafeteria, and storage space. The cafeteria is a non-profit organization operated by the mill to furnish the employees with wholesome food at reasonable prices. The shipping department is rather interesting, in that the cones of knitting yarn are not touched by hand from the time they are taken off the cone winder and placed on trucks until they reach the knitting machines. Most of the cones are used in the Charlotte plants, although a portion of the output is shipped to a northern mill owned by the company.

The windowless mill was designed by and erected under the supervision of the officers of the company—F. Seifart, president and treasurer and M. E. Pierson, secretary and general manager—and is said to be working out even better than was expected.

Employees consider the windowless knittnig department a choice place to work, and many have requested transfers from other Hudson plants to the Oakhurst unit.

Skeptics ventured the opinion during the construction of the windowless Oakhurst plant of Hudson Silk Hosiery Co. that the operatives would resent being caged up in a building without windows. Actually, what happened is that the employees consider the new plant a choice place to work, and many have requested transfers from other plants to Oakhurst.

No feeling whatever of confinement was experienced by a TEXTILE WORLD representative who inspected the mill, even though it was his first visit. Furthermore, it was far more comfortable inside the mill on the day of his visit than it was outside the plant in the blazing summer sun.

WORSTED-SPUN STAPLE

Experimental rayon spinning by Courtaulds produces yarns superior to wool in strength

SOMEWHAT over a year and a half ago, Courtaulds, Ltd., the prominent British producer of viscose rayon, began spinning its rayon staple, known as Fibro, on worsted machinery at its experimental Arrow Mill, Rochdale, Lancashire. In the August issue of the *Journal of the Textile Institute,* W. Hardacre describes the early experiments and outlines some of the remarkably interesting results obtained.

Fibro is produced in 1.5-, 3-, and 4.5 denier. The greatest yarn strength is obtained, as might be expected, with the finest denier; but the difficulty of handling 1.5 on standard worsted machinery renders its use impractical. Practically maximum binding of the fibers in spinning, Mr. Hardacre reports, is reached with 3-in. staple; and greater lengths afford little benefit to the strength of the yarn.

In blends the yarn strength is found to drop steadily as the percentage of wool in the yarn is increased—a fact which will surprise many. In fact, the dry strength of 100% wool yarn was found in the case of the materials tested to be 40% of the dry strength of 100% staple yarn, while the wet strength of wool yarn was about 55% of the wet strength of rayon yarn. More notable still is the fact that the wet strength of rayon yarn is greater than the dry strength of wool yarn. To be specific, a wet 30s Fibro yarn was found to be 28% stronger than a dry 30s wool yarn, and a wet 48s Fibro was found to be 29% stronger than a dry 48s wool. In blends the elongation at break is little affected by the addition of wool until the wool content exceeds 50%, at which point the elongation begins to increase rapidly.

The twist factor which gives maximum yarn strength is roughly the same for 100% staple as for the various blends. A comparison of a 30s yarn spun from 100% Fibro, 4-in. staple, 4.5 denier, with a 30s yarn spun from 100% 64s quality wool, using a twist multiplier of 1.8 in both cases, shows the staple yarn much stronger. Therefore, Mr. Hardacre concludes, with an approximately equal number of fibers per cross-section, staple yarn is much superior in strength.

Staple is also cheaper to spin. No sorting, washing, or burr removal is required. The possibility of miscalculating yield and shrinkage is eliminated. A higher standard of cleanliness and color is obtainable. The standard of purity and stability of the material affords more level shades in dyeing.

Production in carding is equal to that for wool, and there is less fly and waste. The factor of fiber breakage in carding is "less severe." No emulsion is necessary as the fiber is already "soaped." Standard intersecting gill boxes and punch boxes are used. Combs may be of either the Noble or rectilinear type. In drawing, the drafts can safely be increased 20%; and either the open, cone, French, or Anglo-Continental system may be employed. Spinning may be of the mule, ring, cap, or flyer type; and less twist is required—permitting higher spinning production.

Mr. Hardacre does not discuss yarn character.

Analysis sheet gives quick check on

HOSIERY FINISHING COSTS

By M. G. Berg

Ajax Hosiery Mills, Phoenixville, Pa.

UNDOUBTEDLY every hosiery manufacturer establishes a predetermined estimate of hosiery finishing costs. It is advisable to set up a standard which will act both as a guide to selling price, and as a budget to manufacturing expense. This standard or predetermined cost should be made out, not only for direct labor, but also for indirect labor, burden, packing costs, and dyeing. It is advantageous to make a weekly comparison between the predetermined and the actual costs.

This article deals only with the labor aspect, although the other items are equally important. To begin with, a direct labor standard will be found in the first column to the left of the accompanying cost-analysis sheet. This requires a little explanation. The standard production has been placed at 13,000 doz. per week, although the department has a maximum capacity 16,000 doz. This standard was set at 13,000 doz., because it seemed advisable to leave a little leeway in the indirect labor average, due to the weeks that might be under the peak amounts.

Boarding costs are based on a department operating Proctor & Schwartz two-man drying equipment, and the allowance for wooden boards is for samples and a certain amount of regular work used to keep the reboarder and sample men busy. Upstairs finishing takes the work up to the stamping and also includes the allowance for menders. The allowance made is 3% for regular menders and 1% for latchers and latch menders. The third latchers and menders are kept entirely separate.

The counting department has been separated from the upstairs finishing, because the production quite often is either more or less than that of the previous department.

With the indirect labor, is also listed supervision, administration, planning, and shipping. The planning division comprises the clerical staff necessary to keep the work moving, as well as to make all records necessary and all pay vouchers. Shipping, of course, includes the labor necessary to pack and deliver merchandise to the various carriers. All of these indirect labor figures are based on actual experience over a period of time.

Each week a payroll analysis is made from the pay records, and the cost of each operation is divided by the number of dozens going through those particular divisions. The cost per dozen is listed week by week on the analysis sheet. Note how close the actual cost comes to the predetermined. Naturally, if at any time there is a great difference, an investigation should be made wherever the discrepancy occurs. The monthly summary shows quite clearly whether or not actual costs have been kept in line with the standard costs.

At the bottom of the analysis sheet is a record showing the cost of re-work, which is also a part of finishing expense. This information on labor, together with similar data on other elements of expense, will assist greatly in keeping finishing costs where they belong.

FINISHING DEPARTMENT COMPARISON

	Direct Labor Standard	Week Ending 8/8/36	Week Ending 8/15/36	Week Ending 8/22/36	Week Ending 8/29/36	Week Ending 9/5/36	Total for Period
DIRECT LABOR							
Boarding							
Production	13,000	14,777	14,886	13,763	13,629	15,556	73,830
Sorters & Turners	.0060	.0062	.0060	.0060	.0060	.0060	.0061
Boarders	.0786	.0800	.0790	.0800	.0797	.0803	.0800
Wooden Board. All	.0050	.....	.....	.....	.....	.....	.....
Total	.0896	.0862	.0850	.0860	.0857	.0863	.0861
Upstairs Finishing							
Production	13,000	14,169	14,626	14,993	13,467	13,208	70,465
Classifying	.....	.0013	.....	.....	.....	.0007	.0004
Pairing	.0481	.0490	.0487	.0491	.0490	.0490	.0490
Latching 1% of 70¢	.0070	.0087	.0088	.0071	.0073	.0082	.0079
Latch mending 1% of 50¢	.0050	.0059	.0079	.0046	.0052	.0043	.0056
Press Mending 3% of 30¢	.0090	.0105	.0095	.0094	.0087	.0105	.0092
Thirds L & M	.0075	.0056	.0028	.0062	.0026	.0073	.0049
Reboards	.0030	.0021	.0036	.0009	.0041	.0031	.0028
Total	.0796	.0831	.0813	.0773	.0769	.0831	.0798
Counting and Boxing							
Production	13,000	9,281	12,957	12,885	13,153	14,289	62,567
Counting	.0050	.0038	.0029	.0026	.0022	.0042	.0031
Stamping	.0060	.0080	.0050	.0063	.0059	.0060	.0060
Folding	.0225	.0270	.0250	.0223	.0240	.0240	.0240
Boxing	.0050	.0080	.0070	.0092	.0070	.0070	.0070
Total	.0385	.0468	.0399	.0404	.0391	.0412	.0401
DIRECT LABOR TOTAL	.2077	.2161	.2062	.2037	.2017	.2106	.2060
INDIRECT LABOR							
Boarding	.0067	.0060	.0059	.0062	.0065	.0057	.0060
Upstairs Finishing	.0075	.0070	.0083	.0099	.0103	.0119	.0094
Administration	.0092	.0096	.0096	.0094	.0104	.0106	.0099
Planning	.0010	.0009	.0009	.0009	.0010	.0010	.0009
Shipping	.0064	.0090	.0065	.0075	.0054	.0048	.0065
INDIRECT LABOR TOTAL	.0308	.0325	.0312	.0339	.0336	.0340	.0327
REWORK							
Boarding	72 1/24@.0862=6.20	*561@.085=47.68	383 4/24@.086=32.95	582 11/24@.0857=49.91		20@.0863= 1.72	2115 16/24@.0861=182.15
Plus pairing	.....	**497@.085=42.24	.....	.....		93 1/24@.136=12.65	93 1/24@.1355= 12.60
Redyes	59 16/ @.1365=8.14	1286@.1337=171.93	141 11/24@.1351=19.11	.....	.....	.....	1487 3/24@.1355=201.50
TOTAL	14.34	261.85	52.06	49.91		14.37	396.25
Per dozen	.0010	.0179	.0034	.0037		.0010	.0056

* From Finishing Department. ** From Boarding Department.

LIGHTING

THE accompanying diagrams and table show the lighting layouts and levels of illumination recommended for various departments of cotton gray goods mills. These recommendations—which are the result of an intensive investigation in the textile industry—were made in a report submitted by the Committee on Industrial and School Lighting of the Illuminating Engineering Society, at the 30th Annual convention of the society held Aug. 31 to Sept. 3, in Buffalo, N. Y. For experimental purposes incandescent lamps were used, no attempt being made to select the types of illuminants in the mills.

Benefits of better lighting as cited by the committee include, improved quality of the goods as a whole, reduction of seconds, better supervision because of reduction of serious breaks, better cleaning and maintenance of machinery, conservation of eyesight, attraction of better class of employees, less accidents, improvement of morale, and increase in production.

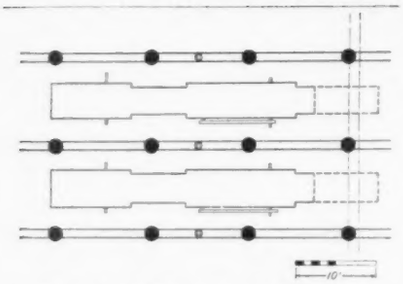


Fig. 1-A. Lighting layout for picker room, single-process pickers. Lamps: 200-watt incandescent. Units: 18-in. industrial diffusing. Mounting height: 12 to 14 ft. Spacing: Distance between units not to exceed lowest mounting height. Calculated average illumination: 5 foot-candles. Comments: Light needed on sides rather than on top of picker.

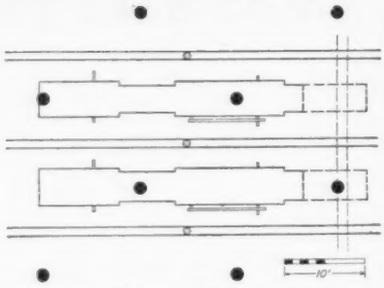


Fig. 1-B. Alternate lighting layout for picker room, single-process picker. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 14 ft. Spacing: Staggered one per bay-division. Calculated average illumination: 6 foot-candles.

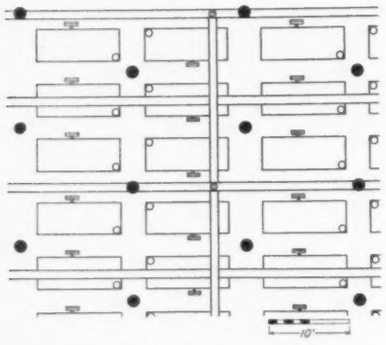


Fig. 2-A. Lighting layout for card room. Lamps: 200-watt incandescent. Units. 18-in: industrial diffusing. Mounting height: 12 to 14 ft. Spacing: Not to exceed 15 ft. Calculated average illumination: 5 foot-candles. Comments: Light needed on sides, front, and back, rather than on top of card.

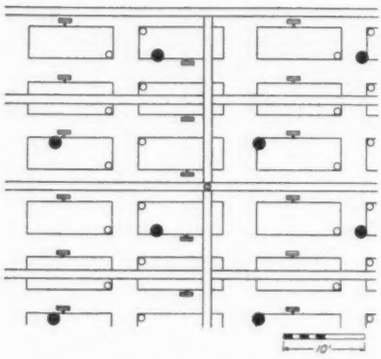


Fig. 2-B. Alternate lighting layout for card room. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 14 ft Spacing: Staggered one per bay-division. Calculated average illumination: 6 foot-candles.

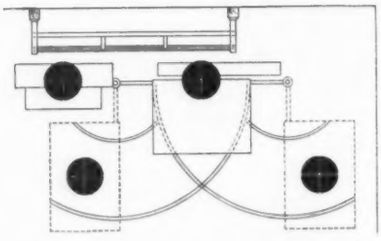


Fig. 12. Lighting layout for automatic warp tying-in machines. Units: Same as recommended for looms. Mounting height: 12 ft. Desirable illumination: 40 to 60 foot-candles. Comments: Light needed at four working positions.

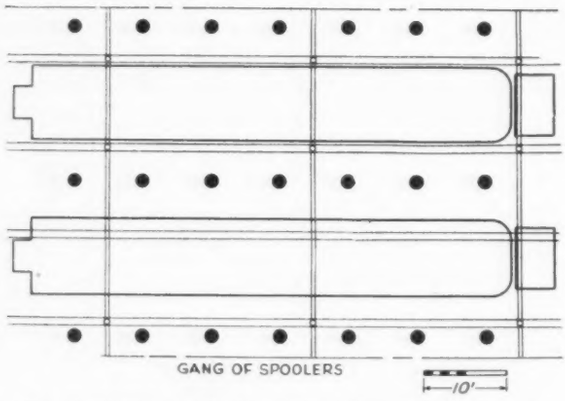


Fig. 8. Lighting layout for spoolers. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Spacing: Approximately 8 ft. along working alley. Mounting height: 10 ft. Calculated average illumination: 12 foot-candles.

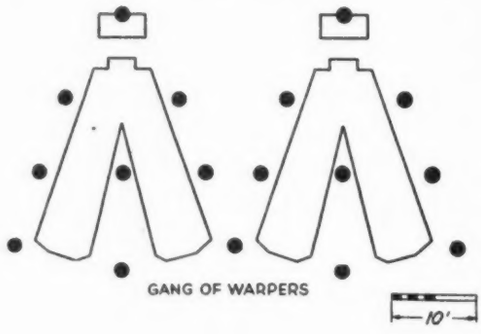


Fig. 10. Lighting layout for warpers. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: All 14 ft. except unit over front edge of warper frame at 8 ft. Spacing: Not to exceed 9 ft. along outside rows. Calculated average illumination: Creel, 10-foot candles; section beam 20 foot-candles.

For drawing-in frames, in addition to the general illumination, there is recommended a supplemental unit (e.g., a 60-watt incandescent lamp) mounted over the frame in such a way that it can be easily moved to provide at least 100-foot candles at the part of the warp engaging the attention of the operator.

The recommended level of illumination for looms is that provided by the order of 200 (150-250) watts per loom; e.g., 40 to 70 foot-candles if incandescent lamps are used. For gray goods, one unit per loom mounted over the loom and 12 ft. from the floor, produces the recommended seeing condition; however, consideration might be given to the initially less expensive system of one unit per two looms mounted over the work alley. For denims and other dark cloth without sheen, one unit per loom is recommended. The unit for lighting the looms should evenly illuminate an area approximately 56 in. in diameter, from a distance (loom surface to unit) of about 9½ ft. It should be relatively large in diameter to minimize shadows, and should be free from glare at normal viewing angles.

In the case of denims, the layouts recommended in various departments are practically the same; but a level of illumination of 100 foot-candles is desirable for slashers, automatic tying-in machines, and on the comb of the section beam; not less than 50 foot-candles on the cloth in the loom; and 250 foot-candles on the cloth being examined on inspecting machines and 30 foot-candles where the defects are corrected or marked.

THE MILL

Recommended practice to improve cotton piece goods production and quality

Recommended Levels of Illumination (gray goods mill)

Operation	Foot Candles
Storage (raw cotton and finished cloth), opening, mixing, picking carding drawing..	5-10
Slubbing, intermediates, roving, spinning.....	10-20
Spooling, warping-on comb (10 ft.-cand. on creel and running ends), slashing-on comb (10-20 ft. cand. on warp beams).....	15-30
Drawing-in by hand (10 ft. cand. general)..	100 or more
Automatic tying-in (10 ft. cand. general)...	50-100
Weaving (on the cloth).....	40-60
Inspecting (cloth turned over by hand).....	20-50
Cloth room	10-20

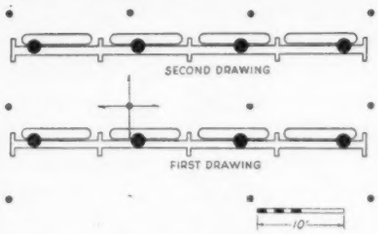


Fig. 3-A. Lighting layout for drawing frames. Lamps: 200-watt incandescent. Units: 18-in. industrial diffusing. Mounting height: 14 ft. Spacing: Maximum of 12 ft. along front edge of cover over drawing rollers. Calculated average illumination: 6 foot-candles. Comments: Layout over cards can be continued on over drawing frames as alternate system (indicated by cross) shows. Light needed on top of frames.

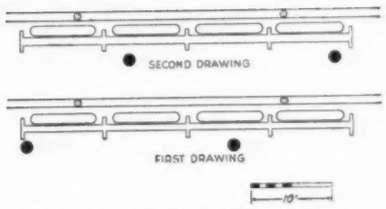


Fig. 3-B. Alternate lighting layout for drawing frames. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 14 ft. Spacing: Staggered one per bay-division Calculated average illumination: 6 foot-candles.

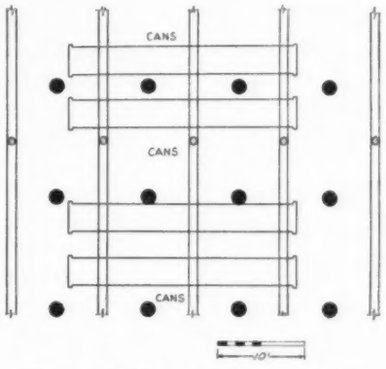


Fig. 4. Lighting layout for slubbers. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 12 to 14 ft. Spacing: Two per bay-division—regular spacing. Calculated average illumination: 13 foot-candles.

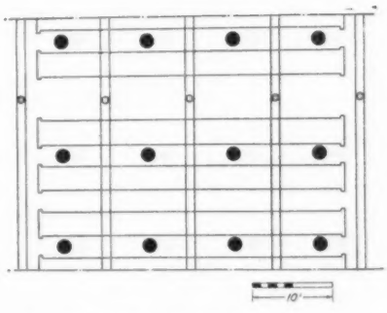


Fig. 5. Lighting layout for fly frames—intermediates, and rovers. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 14 ft. Spacing: 11 ft. or less, preferably less. Calculated average illumination: Spindle alleys, 14 foot-candles; roving alleys, 10 foot-candles. Comments: With a bay width up to 12 ft., the units can be symmetrically spaced along the alleys with respect to the bays.

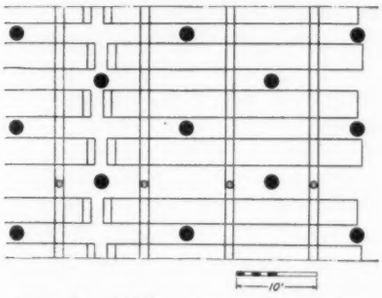


Fig. 6. Lighting layout for spinning frames. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Mounting height: 14 ft. Spacing: Approximately 11 x 12 ft. Calculated average illumination: 13 foot-candles. Comments: This system can be adapted for dark or other yarn requiring more light by adding units to make it a regular layout instead of a staggered one.

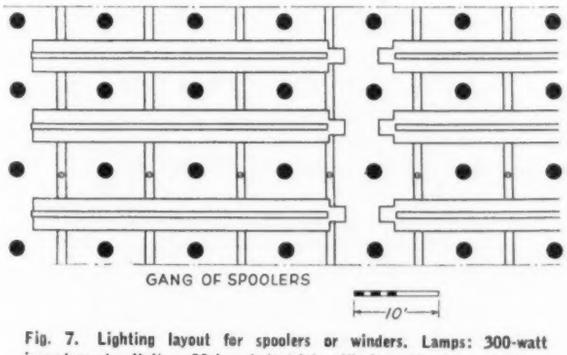


Fig. 7. Lighting layout for spoolers or winders. Lamps: 300-watt incandescent. Units: 20-in. industrial diffusing. Spacing: Approximately 8 x 10 ft. Mounting height: 11 to 12 ft. Calculated average illumination: 18 foot-candles.

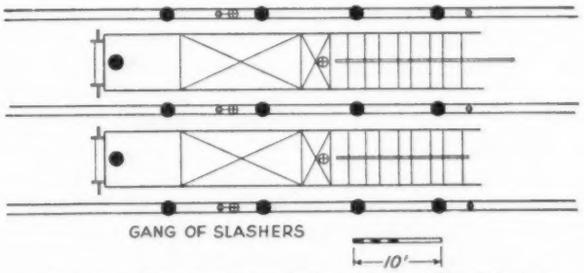


Fig. 11. Lighting layout for slashers. Lamps: Solid circle indicates 300-watt incandescent; cross in circle indicates 100-watt incandescent. Units: Solid circle indicates 20-in. industrial diffusing; cross in circle indicates vapor-proof hood. Mounting height: solid circle indicates units mounted at 14 ft., except unit over comb which should be mounted at 8 ft. Cross in circle indicates units which hang over tank under starch housing. Spacing: Approximately 9 x 10 ft. Calculated average illumination: feed beams and comb, 15 foot-candles; sides of slasher, 10 foot-candles. Comments: Cross extending outside of circle indicates outlet for 20-ft. extension cord to be used to see under and inside of slasher.

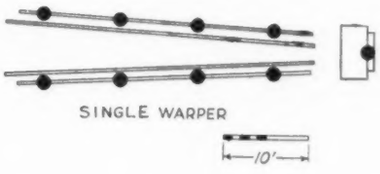


Fig. 9 (at left). Lighting layout for warpers (gang of these warpers same as single). Lamps: 300-watt incandescent. Units 20-in. industrial diffusing. Mounting height: Over outside edge of creel frame, 14 ft.; over front edge of warper frame, 8 ft. Spacing: Maximum of 9 ft. between units along creel frame. Calculated average illumination: On creels on botton row 10 foot-candles; on section beam 20 foot-candles. Comments: Layout over creels is made for relatively even illumination on top row of spools and satisfactory illumination on bottom row of spools.

KNIT-PATTERN FIELDS

For circular-machine work are not so restricted as many designers believe

By J. B. Lancashire

SEVERAL articles discussing patterning by needle selection on circular machines—and applicable to cut-presser spring-needle work, to pattern-wheel latch-needle work, and to certain other patterning methods—have appeared in TEXTILE WORLD during recent years. In none of them, however, has the designing scope of the mechanism been fully discussed, while certain important possibilities have received no mention at all.

This subject is most conveniently dealt with under the following headings:

1. Non-spiral patterning.
2. Diagonal patterning.
3. Spiral patterning in rectangular areas.
4. Pattern development with double spiral.

1. Non-Spiral Patterning

The newer forms of selecting mechanisms have been introduced with the primary object of eliminating the pattern spiral, which is generally associated with the use of pattern wheels. In certain circumstances, however, straight designs can be developed by means of the ordinary type of pattern wheels, although it must be acknowledged that the multi-step and jacquard types of selecting mechanism give larger areas and more scope.

To obtain an area of reasonable dimensions when employing pattern wheels, it is necessary for machines to be equipped with a large number of feeds or with wheels many times larger than the needle cylinder. For most practical purposes, the possibility of using wheels many times larger than the needle cylinder can be ignored, although tie machines incorporating this feature have been put on the market in the past.

In flat figure patterning in tuck, float, or jacquard stitch, when the wheels are equal to or smaller than the needle cylinder, the depth of design measured in full courses is the number of feeds divided by the number of colors in each course. Thus, if a machine with 24 feeds is being used to produce three-color work, the depth comprises eight courses; and if it is being used for two-color work, the depth comprises twelve courses. In the making of reverse-plated fabric, figured fish-net, or tuck effects in self-color where every feed operates as an independent designing unit, the depth is therefore equal to the number of feeds. Another way of expressing it is to say that the depth is the number of design courses, as plotted on squared paper, which can be knitted in a complete revolution of the machine. The width, which may be any factor of the total number of needles, is decided by the size of wheel the machine can accommodate.

In describing how to set out pattern wheels or cut tuck pressers, it will be assumed that the tricks or divisions are going to be dealt with in the order in which they will engage with the needles. For example, in the case of a latch-needle machine with needle cylinder revolving anticlockwise, the wheels will revolve clockwise; hence, in order to fulfill the stipulated condition, they must be set out anticlockwise. The general rule is to take the tricks in order, working around the wheels in the direction of machine rotation when the needle cylinder revolves, and in the direction opposite to that in which the machine revolves when the cam cylinder revolves. This rule also holds good for the cutting of pressers for use on spring-needle machines of the loop-wheel type.

Direction of Reading

Whether design courses are to be read off from left to right or from right to left is determined by the direction of knitting. They are to be read-off from left to right if knitting takes place toward the right, and from right to left if knitting takes place toward the left. Looking at the face side of knitted fabric with the end that was made last at the top, the direction of building-up the design is toward the right when the needle cylinder revolves clockwise or the cam cylinder anticlockwise, and toward the left when the needle cylinder revolves anticlockwise or the cam cylinder clockwise. This method is subject to the fabric being drawn-off either downward with the face side outward, as on the majority of latch-needle machines, or upward with the face side inward, as on loop-wheel machines. If the back of the fabric is to constitute the effect side, as in plush, the direction is reversed.

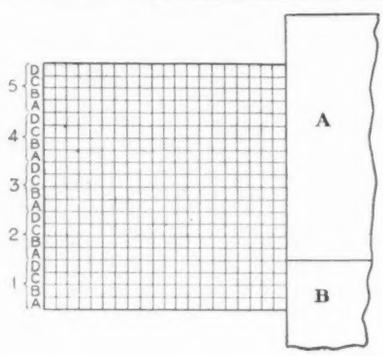
The essential condition governing non-spiral designing with ordinary pattern wheels is that each feed shall make the whole or a part of one, and only one, design course, except in the unlikely event that the wheels are twice or three times the size of the cylinder, in which case each feed can develop two or three non-spiral design courses. Normally, if the stitch is such as to allow each feed to produce the whole design course, or what is represented on paper as a complete design course, then the bottom one will be developed at the first feed, the next at the second feed, and so on. The wheels must be set out accordingly, the arrangement of the bits being repeated if necessary until all the tricks have been exhausted. It is necessary that the number of tricks in each wheel be equal to, or a factor of, the number of needles in the cylinder.

2. Diagonal Patterning

Diagonal stripes are developed when the number of tricks is equal to, or a factor of, the number of needles plus or minus the number of design feeds:

$$T = \frac{N \pm F}{a}$$ where a is any integer.

According to whether the number of feeds is added to or subtracted from the number of needles, the stripes are



Relative positions of rectangular areas for spiral patterning

***THE MOST SUITABLE** areas for circular-knitted patterns are sometimes overlooked by knitters because they do not understand the full possibilities. Therefore, in this article Mr. Lancashire undertakes to establish rules which will meet all possible requirements for laying out design fields. Also he offers instruction on determining the arrangement of pattern-wheel bits or presser cuts and explains how varying conditions affect the development of designs.*

inclined in the direction of knitting or in the opposite direction. When no complementary selections have to be made, it is possible to employ two wheels at each design feed to develop patterns by the crossing of diagonal stripes. One wheel must contain a suitable number of tricks for striping in the direction of knitting, while the other contains a suitable number for striping in the opposite direction. This method has been adopted on seamless half-hose machines to produce diagonal effects on a sinker-plating basis. In a typical case a machine with 160 needles in the cylinder and a corresponding number of sinkers is fitted with two separate selecting wheels, one containing 161 tricks and the other 159 tricks. Sinkers are pushed inward to reverse the positions of the threads if they are acted upon by bits in either or both wheels.

On multi-feed machines a stepped formation can be obtained in place of diagonal stripes, if desired. The change from continuous striping to the stepped formation does not necessarily involve a rearrangement of the selecting bits, since it can be effected by altering the relative positions of the wheels.

3. *Spirals in Rectangular Areas*

In most cases pattern wheels and cut pressers are utilized for the purpose of developing designs spirally in rectangular areas. This principle of patterning is preferred to non-spiral designing, because it does not impose such strict limitations. Convenient areas can usually be obtained with any number of design feeds and any size of wheel. Its advantage over diagonal patterning lies in the fact that it offers much wider scope for the use of both stitch and color for ornamental purposes.

Areas cannot be chosen entirely at random, but the choice is much more extensive than is commonly supposed. The width, measured in wales, may be any factor of the number of needles in the machine. By dividing the width into the total number of needles, the number of column repeats is obtained, and the depth per design feed measured in courses can be *any* whole number that is prime to the number of column repeats.

The conditions governing the finding of rectangular pattern areas can be expressed algebraically. Let the number of needles be denoted by the letter N, the pattern width by W, column repeats by R, number of design feeds by F, depth per feed by d, and total depth by D.

$$R = \frac{N}{W} = \text{a whole number}$$

d must be prime to R

$$D = dF$$

The practical steps involved in arriving at a suitable area in a particular case may be illustrated by considering a 480-needle machine. The prime factors of 480 are 2, 2, 2, 2, 2, 3, and 5. These factors can be combined in any desired way with the object of obtaining a convenient width. Generally speaking, an area approaching the form of a square is best; but before a width which will give this shape can be chosen, it is necessary to know the size of wheel that can be used and how many primary design feeds the machine contains.

Assume the limits of the wheel to be 100 cuts and say that there are four design feeds. Altogether it is possible to have 400 stitches in the design area. A width of 20 (2x2x5) is therefore most suitable. The number of repeats of this width around the tube of fabric is 24, which allows a depth of five courses per design feed to be used, giving an area 20x20.

Subject to other circumstances remaining unchanged, the same design area can be employed on a machine containing 660 needles, because with a width of 20 the number of column repeats is 33, which has no factor in common with 5, the depth per design feed. It can be used also on an 840-needle machine where the number of column repeats is 42.

Although, as has been shown, the same area can be used on machines irrespective of whether they have 480, 660, or 840 needles in the cylinder, a design plotted out within this area will not be developed on the fabric in an identical way in each case. The reason for this is that the extent of the pattern spiral varies in accordance with the relation existing between the number of pattern repeats and the depth per feed. The relation is found by evaluating x in the equation $dy = Rx\text{-}1$, the minimum value obtainable for x being the extent of the fall per feed between pattern widths, measured in complete design courses. The full extent of the fall is xF courses.

Thus when $N = 480$, $F = 4$, $W = 20$, and $d = 5$, since $R = 24$ the equation is

$$5y = 24x\text{-}1$$

whence $x = 4$ and $xF = 16$.

The design falls 16 courses between pattern widths in the direction of knitting. Since the total depth is 20, this is equivalent to a rise of 4. The interdependence of rise and fall is illustrated in Fig. 1. A and B show the positions of the two areas adjoining the one that is drawn out in full. A rises 4 courses while B falls 16 courses, toward the right.

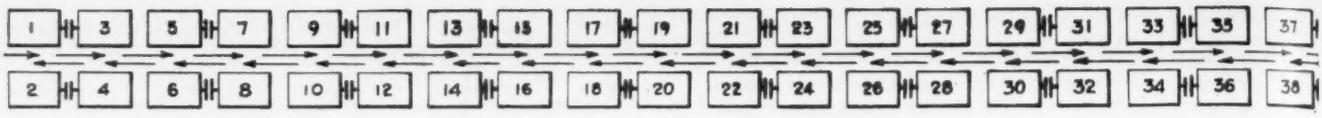
Further, when $N = 660$, $F = 4$, $W = 20$, and $d = 5$, $R = 33$ and the equation is

$$5y = 33x\text{-}1$$

This equation is satisfied when $x = 2$, which means that the design will fall $2 \times 4 = 8$ courses. In the third case, where $N = 840$, the equation is $5y = 42x\text{-}1$; whence $x = 3$, so that the design falls 12 courses.

The same rules that apply to non-spiral designing govern the direction of reading the pattern courses in spiral designing. When more than one pattern is knitted by each feed, however, it is necessary to determine the order in which they are to be read off. In the rare event that more than one course is developed by each feed in non-spiral designing, they are read off in numerical order from the bottom upward; but when the designing is spiral, the order is influenced by the relation between the number of pattern repeats and the depth per feed. The value of x in the equation $dy = Rx\text{-}1$ is again the deciding factor.

In a continuation of this article, to appear in an early issue, Mr. Lancashire will show two different ways of specifying the courses in spiral patterns and will discuss pattern development with double spiral.



THE WEAVER'S PATROL . . .

Multiple-loom sets should be so laid out that machines are visited at uniform intervals

By Ivar Moberg

IT IS exceedingly important that a multiple-loom set be so laid out that the weaver covers the least possible floor space and gives each loom its share of attention. Few mills give this item sufficient study. Also, very little thought is given to the route taken by the weaver, in most instances this being left to his personal choice.

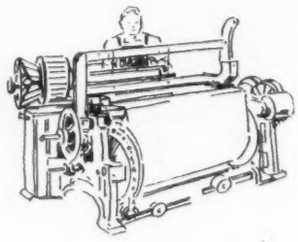
In a multiple-loom set the weaver cannot jump from loom to loom, as is the usual practice with smaller sets. Such a practice on a multiple set would result in low production; and the large amount of floor space covered by the weaver would quickly cause excessive fatigue, with a resulting lack of alertness. Of course, an expert weaver, accustomed to working on multiple-loom sets, will soon discover the route which covers the least possible floor space and at the same time allows his attention to be equally divided among the looms. Many weavers, however, lack the ability to find this route; and it therefore falls on the shoulders of the mill officials to study and lay out the most efficient path.

A layout for a multiple-loom set which covers the least possible floor space is not always the most efficient. There has to be taken into consideration the fact that each loom must be allowed its share of the weaver's attention at regular intervals. The accompanying diagrams illustrate this. Fig. 1 is a single-alley system; Fig. 2, a double-alley system; Fig. 3, a triple-alley system; and Fig. 4, a cross-placing system.

Layout with Shortest Route

It will be seen that the loom layout in Fig. 1 has the shortest route of all. For convenience, let us call the distance walked by the weaver in this layout 100 units. While this layout calls for a shorter patrol than any other, it has the disadvantage of not permitting a route that would equally divide the weaver's attention at regular intervals for each loom. For instance, it will be seen that looms Nos. 1 and 2 and 47 and 48 get only one visit to the other looms' two. If we assume that it requires 15 min. for the weaver to walk the route, it will be 30 min. before each pair of end looms gets any attention from the weaver. Looms 3 and 4 and 45 and 46 will get two visits in 30 min. but these visits will follow in quick succession with a long interval between them. The only two looms that get attention at regular intervals are the two center looms, Nos. 24 and 25. The weaver will reach these looms every 15 min., if we assume that each loom requires the same amount of attention. The farther away the looms are from the center of the set, the more irregular become the intervals of attention.

It will be readily understood that, while a weaver covers less floor space in a single-alley system, the attention given to the looms away from the center is very irregular; and it is therefore one of the poorest layouts for multiple-loom sets.



The double-alley system (Fig. 2) is one of the most efficient that can be laid out. Distance walked is somewhat more than in Fig. 1, being 118 units against 100. However, the layout allows a perfect allotment of the weaver's attention to each loom. If the weaver enters the set at loom No. 1, allowing the same time per loom as in the first layout, he will have completed the round in approximately 15 min. and at that time will be back at loom No. 1, whence he started. Each loom will receive attention at regular intervals. As the weaver works in one of the alleys, he can also see the looms in the other alley; and, if he notes anything which is causing a weaving defect, he can go over and stop the loom before the defect has run too far to be picked out. It is the writer's opinion that the two-alley system is far superior to any other system of loom layout.

Triple-Alley System

The triple-alley system, shown in Fig. 3, makes the laying out of a proper route rather difficult. The distance covered by the weaver is approximately 163 units. In this layout, starting out at loom No. 1, he walks up the first alley to loom No. 16. He may then enter the second alley in the middle, or at loom No. 25, and from there walk to loom No. 32 and enter the third alley at loom No. 33. He will now walk this alley up to loom No. 48 and from there reenter the second alley at loom

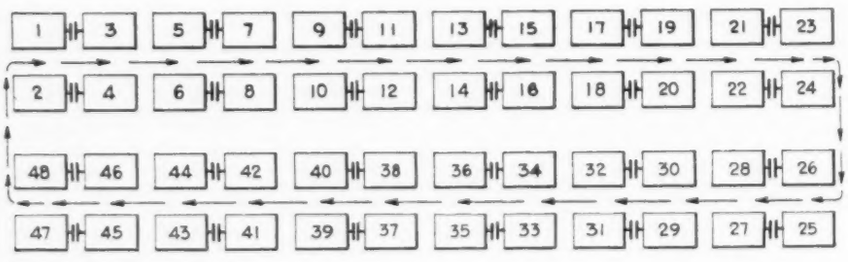


Fig. 2. Double-alley layout

Fig. 1. Single-alley layout

No. 17, leaving it at loom No. 24 and cutting diagonally across the back alley to loom No. 1, whence he started.

While this route is not the shortest that could be laid out for a triple-alley system, it permits the weaver to divide his attention among all the looms, giving each its share at regular intervals. The only other alternative is a route from loom No. 1 to loom No. 16 in the first alley, entering the second alley at loom No. 17, walking up to loom No. 32, and then traversing the third alley up to loom No. 48. However, after completing this route, the weaver will find himself at the wrong end of the loom set. He will now have to re-enter the second alley at loom No. 17, walking this alley up to loom No. 32, and going from there to loom No. 1. It will be readily seen that this layout results in the weaver's attention being divided into very irregular intervals. Thus, the looms in the second alley receive twice as much attention as do the looms in the first and third alleys.

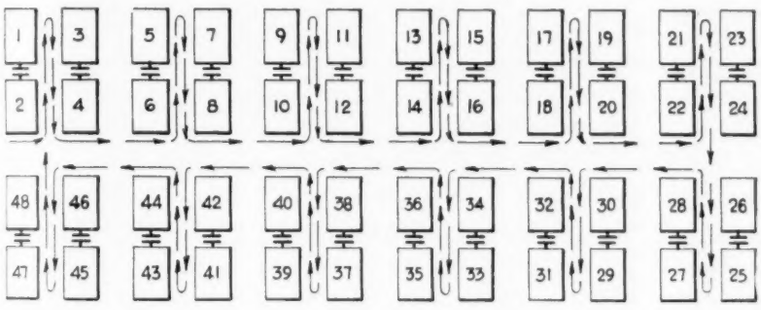


Fig. 4. Cross-placing layout

In other words, the time required for the weaver to walk from loom No. 1 and return would be approximately 20 min. Of this time the looms in the first alley would be allotted 5 min.; the looms in the second alley, 10 min.; and the looms in the third alley, 5 min. The time given throughout this article is, of course, purely arbitrary and is offered only for comparison.

The last-mentioned layout, while somewhat shorter than the first specified for the triple-alley system, is neither practical nor efficient, due to the favor given the looms in the second alley.

Cross-Placing System

The layout shown in Fig. 4, which represents one type of a cross-placing system, is about the most difficult for which to lay out a route. The floor space covered by the weaver is larger than in any of the other systems given in the article. In fact, the distance he travels is so large that it must be taken into consideration. Due to the great number of alleys to be crossed and the unavoidable retracing, the distance traveled amounts to 246 units—although if there is a passageway between the walls and looms, it is reduced to approximately 180 units. This reduction is the result of cutting out the retracing of the weaver's route.

Since the looms, as a rule, are placed close to the walls, the first layout of the route was drawn up to allow for this arrangement. In this case the weaver may enter the loom set at No. 2, walk to No. 1, retrace his steps to Nos. 3 and 4, pass the back alley to loom No. 6, and so on until he reaches loom No. 24, whence he crosses the main alley to No. 26, proceeds to No. 48, and crosses the main alley to No. 2. As stated, the weaver covers a distance of 246 units in this route, which is excessive; and the only important advantage of the layout is that each loom receives its attention at regular intervals. Another advantage, but of less importance, is that more daylight enters the alleys with this layout.

If, however, there is a passageway for the weaver between the ends of the looms and the walls, a fairly good route can be laid out with the cross-placing system. In this case the weaver would enter the loom set at loom No. 2, walk up this alley, and turn around Nos. 3 and 5 into the next alley, making his way through the looms in the first alley until he reaches loom No. 24, when he would cross the main alley to No. 26, walk around Nos. 27 and 29, and go into the second alley of the second row of looms. Reaching loom 48, he would again cross the main alley to loom No. 2. While this route, as previously stated, would reduce the distance traveled to approximately 180 units, even this is long, due to the great number of back alleys the weaver has to cross.

The above loom layouts are considered for front-alley weaving only. In mills where back-alley weaving prevails, other layouts must be considered and the route of the weaver altered accordingly. For instance, the loom layout of Fig. 1 may be ideal for back-alley weaving if the route of the weaver is so altered that he will walk up the entire length of the alley, turn around the last loom (No. 47) into the back alley, turn into the front alley when he reaches loom No. 1, walk again up to loom No. 48, and turn into the other back alley. With this route, the front of the looms would be given attention two times to every one on the back.

It is not the writer's opinion that these particular loom layouts are without question the most efficient that can be devised. They are open to criticism; and, if this article leads to an extensive discussion of the loom-layout problem, it will have served its purpose very well. TEXTILE WORLD and the writer would be much pleased to hear from other mill men as to how they have handled the problem in their plants and the results attained through improved arrangements.

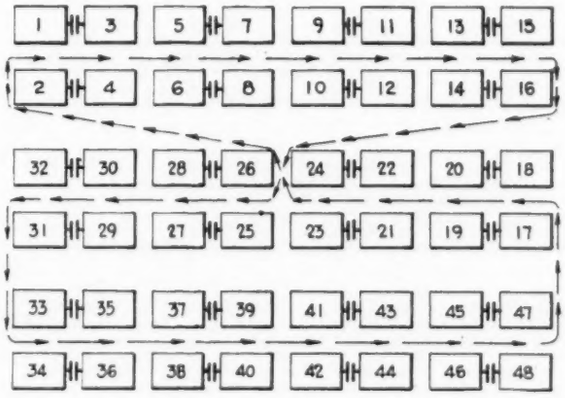


Fig. 3. Triple-alley layout

PIECE-GOODS MERCERIZING

Operation is speeded up and costs reduced by improvement in methods and equipment

By C. A. Jennings

TWENTY YEARS ago the standard method of mercerizing cotton piece goods consisted of passing the boiled and dried cloth, in the open width, over a series of rolls and tension bars into the caustic solution, squeezing through a heavy three-bowl mangle, stretching on a tenter frame, and washing through a four-compartment wash box at the end of the range. It was considered that proper mercerization could not be obtained unless the caustic was about 52° Tw., the temperature of the solution 40° F. or colder, and the length of time that the cloth was in the mercerizing solution approximately 1½ min. This procedure permitted a cloth speed of 35 to 40 yd. per min.

Changes and improvements in methods and equipment have speeded up the process and reduced mercerizing costs. Many of these changes in methods have been worked out by the mercerizers themselves. As a result, one plant has done one thing; another, another; and still another, something else. It is the purpose of the author in this article to point out the various changes which have taken place. This will permit the individual finisher to determine whether or not his own methods are as far advanced as those followed in other plants, and, if not, to bring them up to date.

It has been found that for all practical purposes it is unnecessary to maintain the temperature of the caustic solution at the temperature of 40° F. originally considered necessary. Today different plants are mercerizing at temperatures ranging from 60 to 100° F. This practice obviates expensive and complicated refrigeration equipment and other cooling systems—with all the attendant tanks, piping, pumps, etc.—and results in a reduced installation cost for new mercerizing ranges and lower maintenance costs on present equipment.

A study of the time factor involved in mercerizing showed that the reaction between the caustic and the cotton is virtually complete in 75 sec. Working on this basis, mercerizers have increased the number and the height of the rollers in the caustic saturation box and the amount of cloth between the last nip of the mangle and the tenter. In this way, they have been able to obtain satisfactory results at cloth speeds of 60 to 65 yd. per min., and, in some plants, as high as 80 yd. per min.

Wet Mercerizing

Formerly usual practice was to mercerize on dry cloth; but today nearly every finishing plant has developed some method of mercerizing wet cloth. Mercerizing wet cloth eliminates a drying operation. In addition, the caustic seems to penetrate better on wet cloth and, therefore, to produce a more deeply seated luster, rather than mere surface mercerization. Again, the wet cloth appears to have more elasticity and is less likely to be damaged. In some plants mercerizing is carried out on gray goods which have merely been singed, wet out, and mangled; in others, after singeing and desizing; in others, after kier-boiling; and in still others, after kier-boiling and bleaching. The most common practice is to mercerize directly after kier-boiling.

Each plant seems to have its own mehods for washing the caustic from the cloth after mercerizing and for the recovery and utilization of wash liquors.

Plants which are doing a comparatively small amount of mercerizing usually recover the wash waters and use them for kier-boiling, in the dyehouse, and for other miscellaneous purposes. As a rule, plants with more than two ranges find it economical to install a more or less elaborate recovery system and an evaporator to concentrate the washings not required for kier-boiling, etc., for re-use in the mercerizing department.

With a good counter-current washing system, not more than 1½% of caustic should be left in the cloth. In the case of fabrics which are to be kier-boiled after mercerizing, washing need not be as thorough as this. The only water necessary with the counter-current system is that supplied by a spray pipe fitted to the last wash box just before the last nip. After striking the fabric, this water falls into the last wash box, where it is heated by direct steam nearly to the boiling point. It then overflows by gravity into each preceding wash box in turn. From the first box the caustic solution is then pumped to the last two spray pipes or pans on the end of the frame and passes through the cloth or overflows at the end of the frame into pans or pits under the frame. From this end pit, another pump feeds the wash liquor to the first spray and again it is collected underneath in pits that are piped to the weak caustic recovery tank. This gives a caustic solution ranging from 6 to 12° Tw., depending upon the efficiency of the system and its operation.

Handling Wash Water

At one time it was fairly common practice to attempt to purify the recovered washings by chemical treatment and precipitation. Now screening and filtering through gravity or pressure filters before evaporation is usually the most that is done.

The design and layout of the recovery system vary greatly in different plants, depending partly on whether mercerizing is carried out in the gray, after kier-boiling, or after bleaching. When gray goods are mercerized, the caustic picks up considerable amounts of lint and other foreign matter, which complicates the recovery problem.

Another factor which affects the design of the recovery system is the method of disposing of the strong caustic overflow from the saturating pad. In wet mercerizing, the cloth carries water into the pad, thus diluting the caustic. In order to maintain the solution in the pad at the desired concentration, it is necessary to have a steady overflow and constantly to feed in strong caustic. This overflow will average about 50° Tw. In some plants the overflow is mixed with the washings from the frame, and the mixture of washings and overflow is filtered and evaporated. In other plants only the washings are evaporated, the overflow (with or without filtering) being

fortified with stronger caustic and recirculated to the pad.

Within the last few years a number of wetting agents have been developed which can be employed in conjunction with mercerizing solutions. Plants using these compounds have found them particularly effective in processing fabrics, such as high-count broadcloths, which are not easily penetrated by straight caustic. Likewise, these wetting agents are of assistance in mercerizing goods which have not been properly kiered.

Clip Marks

A fault frequently encountered in mercerized fabrics is that of clip marks on the selvages. This condition does not show until the cloth is dyed; but if the marks are heavy enough, it is possible even to measure the width of the tenter clip on the selvages. The cause of this trouble is uneven or incomplete mercerization. It is produced by the caustic wash water getting onto the plate of the clip and being carried around the frame, so that when the cloth comes directly from the saturating pad it is fed into the clips at the entering end of the frame. This wash water is taken up by the cloth, lowering the strength of the caustic in the cloth, and either stopping or reducing the mercerizing action. The defect is most pronounced if the cloth is dyed with colors having a greater affinity for a mercerized than for an unmercerized fabric.

Several methods have been devised to overcome this trouble, such as running full-strength caustic on the clips before they enter the starting end of the frame, using compressed air to blow off into the room the excess liquor from the clips, employing spray pipes which can be turned so that the spray of wash water reaches nearly to the clips but not on them, and using the shovel or pan type of spray which allows the wash water to flow onto the cloth without wetting the clips. The writer believes that the last method is the most effective.

Improved Equipment

The most revolutionary innovation in piece mercerizing equipment was the introduction several years ago of the so-called chainless mercerizing range. This type of machine requires only about half the space of the conventional type of range with 60-ft. tenter frame and is less expensive to install. Again, two or more ends of cloth can be run at the same time.

There is all kind of controversy as to the relative merits of the two types of equipment, so far as regards quality of work on different types of fabrics. The writer prefers the chainless machine for goods heavier than 3½ yd. to the pound and for marquisettes and other net types of fabrics. He believes also that the highest luster is obtained on broadcloths and similar constructions with the two-bowl, hydraulic-pressure, double-mangle design of chainless machine with latest typ expanders. For goods lighter than 3½ yd. to the pound, the writer favors the chain or tenter type of machine. This is especially true in the case of dress goods and sheer fabrics, in which a full-rounded, thready appearance and handle are desired.

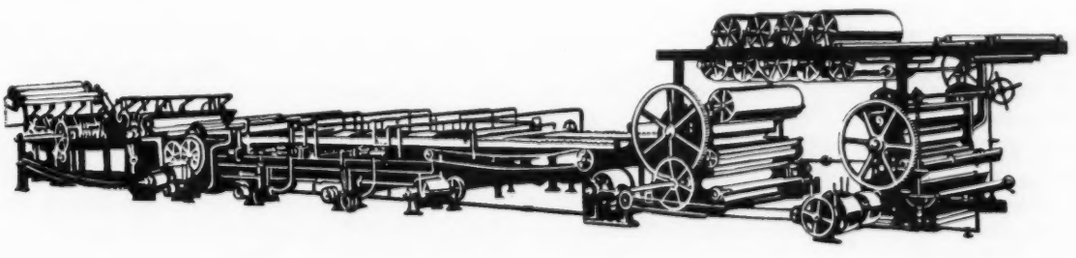
An important improvement in the chain type of mercerizing equipment was the development a few years ago of a double tenter clip, which permits two ends of cloth to be run through the range at the same time. This arrangement practically doubles the productive capacity of the range.

Cotton-Rayon Mixtures

Mercerizing of cotton-viscose and cotton-acetate fabrics is not general practice, but quite frequently is necessary. Here again, the procedure varies in different plants. In some cases, mercerizing is carried out in the gray; in others, after the goods have been scoured and bleached. Some mercerizers use practically the same method for cotton-rayon mixtures as for all-rayon; others add some buffer material to the alkali to prevent or reduce its action on the synthetic yarn. Use of caustic at a temperature of not over 50° F. is the rule in some plants. Reducing the strength of the caustic and the tension on the fabric is another expedient. Use of caustic potash instead of caustic soda has been tried. Washing in boiling water, in cold water, and in brine solutions—each method has its advocates. For mercerizing light-weight cotton-rayon mixtures, some mills use a chainless machine and run two ends at once, the bottom end being a cotton fabric which acts as a carrier or apron for the more delicate rayon fabric.

Although mercerizing has been speeded up, equipment improved, and the procedure considerably modified, fundamentally the process remains much the same as it was twenty years ago. The immediate problem of the individual finisher, therefore, is to make certain that the methods he is using are the ones which are most suitable under the conditions in his own plant.

Undoubtedly the next few years will see further machinery improvements; there is still a lot of work to be done on mercerizing of cotton-rayon mixtures and on caustic recovery; there is a possibility of producing shrink-proof and non-crushable finishes in conjunction with mercerizing; there is more than a possibility that—for some purposes, at least—other chemicals will be used to produce effects not obtainable with caustic soda. In short, the changes which have taken place thus far have largely been with a view to reducing costs; there will be further progress in that direction and, at the same time, increased attention will be paid to the development of finishes superior to those now generally produced.



TOO MUCH LUSTER

On rayon-acetate alpacas avoided by proper finishing methods

By Philip LeBrun

RAYON-ACETATE alpaca is one of the more popular fabrics for better-grade dresses for fall wear. The original samples and pieces processed by the writer were all four-thread yarns; but these are being copied and made less expensive by substituting two-thread yarns.

The chief defects encountered in finishing these goods are breaks, excessive luster, and poor penetration of the dyes—especially in the tightly twisted rayon yarn. Poor penetration is apparent as soon as the cloth is stretched. Alpacas dyed black show numerous white and gray specks after stretching to width. Breaks originate from a number of sources. One cause which must not be overlooked is sharp creases in the gray which get set in the subsequent scouring operation. The chief cause of breaks, however, is improper handling in the initial scouring or boiling-off operation.

Continuous Boil-Off

Alpacas are scoured either in silk boil-off tubs or continuous machines. The latter method is by far the cheaper and gives excellent results. A simple type of equipment consists of a wooden or cast-iron tank about 10 to 15 ft. long and 3 ft. deep. The tank is equipped with two 2-ft. reels, one at each end. These are almost totally submerged in the wetting-out liquor. Regulation of the speed of the cloth by means of the entering and delivery rolls makes it possible to keep the gray goods pressed full width against the first roll. This tends to retard shrinking slightly and also prevents wrinkles. Too rapid shrinking and wrinkles are the greatest causes of breaks during the scour. Guide rolls at the bottom of the tank keep the cloth full width until it leaves the wetting-out box. After the alpaca is thoroughly wet-out and almost completely shrunk, it is possible to continue the scouring in rope form without the likelihood of causing breaks. Boiling hot water seems to serve the purpose of wetting-out alpacas, especially since most weavers are now using gelatin or some other easily water-soluble warp-sizing compound.

Boiling-off of alpacas in "skein" form in the regulation silk boil-off tubs almost always results in 2 to 3 yd. at one end of each piece being badly wrinkled. This is caused by the stick inserted through the center of the reeled cloth by which the "skein" is supported on the sides of the box. While extreme care will cut down the spoiled yardage, it is almost impossible completely to prevent it.

Addition of a good wetting agent to the dyebath is recommended to lessen the danger of poor penetration of the dyes. For the same reason, it is advisable also to maintain the dyebath at a slightly higher temperature than is usual for acetates.

Vacuum extracting is preferable for rayon-acetate alpacas. If a vacuum extractor is not available, the excess dye liquor can be removed by squeezing the cloth full width on a mangle. Care must be taken not to allow any wrinkles to go through the nip of the mangle. Carelessness in regard to this point will result in sharp diagonal breaks which are almost impossible to remove at any subsequent operation.

Even with the closest supervision, numerous tiny wrinkles and breaks occur near the ends of each piece, due to dyehouse seams, opening up after dyeing, etc. These can be removed by can drying or by drying on a Palmer machine. However, both of these methods may result in an undesirable increase in luster. Any luster due to the Palmer can be decreased until it is barely noticeable by running the cloth into the blanket barely moist, and then setting the speed of the machine so that the fabric is still steaming when it leaves the Palmer drum. This method requires continual supervision and is a constant potential danger, since any extra dry portion of the fabric will come through with an extremely high luster on one side. This high luster is difficult to cover up in subsequent processing. Use of excessive amounts of duller, for example, would result in the fabric marking white.

It is possible to remove wrinkles by framing the wet cloth, using minimum tension lengthwise. The frame itself is set to the finished width. After framing, the smoothed-out cloth is shelled up loosely and transferred to a net or loop dryer for complete drying. The subsequent operations in consecutive order are framing, sizing on a two-roll mangle, drying on a net or loop dryer, and steam-stretching to width. The size generally consists of 3 qt. of sulphonated alive oil and 1 qt. of dulling paste to a 50-gal. mix. It is sometimes necessary to give the cloth a final cold calendering in order to obtain the desired mellowness. Decating will improve the appearance of alpacas by decreasing the luster, hiding any breaks, and giving additional softness.

About 12 to 15% shrinkage is necessary to obtain a full, soft handle. Any stretching during the finishing operation will result in less shrinkage. The stretched cloth will be more wiry and more lustrous than an alpaca with 12% or more shrinkage. These two faults seem to become more marked as the shrinkage decreases, so that pieces which have less than 10% shrinkage from the gray length are usually too wiry and lustrous to be salable as first-quality merchandise.

COTTON TWILLS

By John Hoye

IN this, the tenth, instalment of his series on STAPLE COTTON FABRICS, Mr. Hoye completes his discussion of three-harness twills and moves on to four-harness twills.

Jean

Jeans are three-harness warp-face (regular) twills. The yarns are similar to those used in light-weight sheetings. The weave is the same as in the drill, two up and one down, or 2/1 twill. It also is a left-hand twill. Jeans always have lighter yarns and always a finer twill effect.

Uses in gray: Bases for imitation leather, etc.

Finishes used: Backfilled, middy, mercerized, schreinered, drapery-print (wide widths), shirting (dyed in mineral, sulphur, vat dyes), sometimes preshrunk.

Uses in finished state: Middy blouses, running shorts, camp uniforms, work and sport shirts, overalls, shoe linings, uppers, corsets, draperies, doctors' and nurses' uniforms, patients' nightshirts, play suits, children's bloomers.

Widths: Usually 38 in. Also in 30, 31, 32, 37, 39, 41, 42, 43½, 56 and 60 in.

Constructions: 84x56 to 100x64.

Warp yarns: 21s to 24s.

Filling yarns: 24s to 30s.

Examples of Jean Constructions

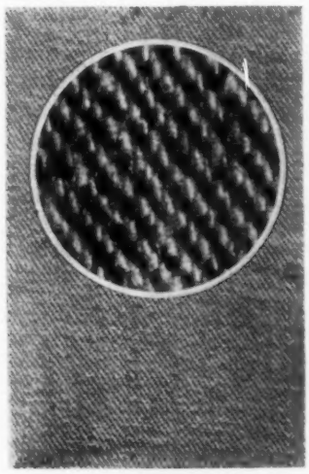
30″	84x48	4.25	38″	96x60	4.50
30″	86x56	4.00	38″	96x64	2.36
30″	96x64	3.50	38″	96x60	3.10
31″	96x64	3.25	38″	96x64	2.85
32″	96x64	3.28	39″	96x64	2.85
37″	96x60	4.50	41″	96x64	2.60
38″	84x56	3.50	42″	92x56	2.67
38″	84x56	3.15	50″	96x64	2.16
38″	92x56	2.95	56″	96x64	1.93

Three-Leaf Warp Twill

Three-leaf warp twills are made in only a few constructions. They are lighter-weight cloths than jeans or drills and employ print-cloth yarns. In weight and yarns used they are comparable to carded three-leaf filling twills. Widths are usually 39 and 43 in. and the twill is upward to the left.

They are usually bleached or khaki dyed and given shirting or firm starched finishes. Uses include work shirts, pocketings, etc.

Examples: 39″ 64x64 5.10, 39″ 64x56 5.25, 39″ 64x48 6.00.

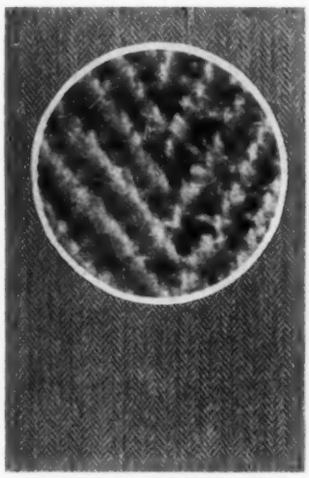


McCampbell & Co.

JEAN
39″ 96x64 2.85 yd.

Coutil

"Coutil" is a French term, meaning drill. *Coutils,* because of their texture, are largely used for corsets, etc. They are three-harness warp-face herringbone twills, strong and firmly woven, and often of a higher count than jeans and heavier in weight. The yarns are about the same as those used in medium and coarse sheetings, the filling always being heavier than the warp. Combed yarns are also used. Exceptional strength is required of the *corset coutil.* In some cases a breaking strength of 120 lb. is specified in both warp and filling and, in the combed qualities, as much as 140 lb. both ways. The lighter-weight carded qualities are used for coating purposes.



COUTIL
41″ 104x84 2.05 yd.

Uses in gray: Drop curtains, bases for imitation leather.

Finishes used: Firm starched effects. Usually bleached or dyed.

Uses in finished state: Corsets, brassieres, surgical belts, draperies, tickings, work clothing, hunting and sports clothes, shoes.

Widths: Usually 38 in.; also made in 28, 54, and 60 in.

Constructions: 96x62 up to 124x80.

Warp yarns: 22s, 24s, 28s.

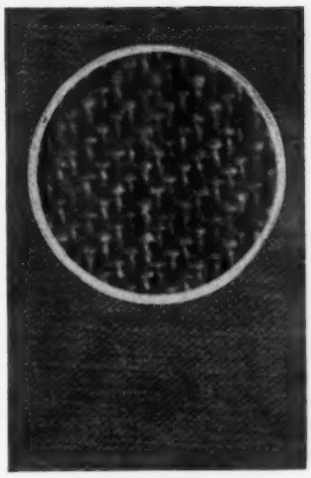
Filling yarns: 16s to 24s.

Examples of Coutil Constructions

38″	124x80	1.90	37½″	86x68	2.25
38″	112x56	2.73	40½″	124x76	1.55
38″	96x80	2.25	41″	104x84	2.03
38″	96x62	3.00	61″	112x86	1.75

Three-Leaf Filling Twill

Three-leaf filling twills, often referred to as clothing twills, are lighter weight than drills or jeans. They are the only three-harness filling-face twills made. In weaving, each filling thread floats over two warp threads and under one warp thread to each repeat of the weave. The weave is known as one up and two down, or 1/2 twill. The direction of the twill is upward to the right. Print-cloth yarns are used for the most part, but better qualities are made with combed yarns in both warp and filling or in the filling only. The combed-yarn cloths finish with a highly lustrous silk-like finish. These twills usually have more filling threads than warp threads. A few constructions are made square, and others are made with the filling eight or ten threads lower than the warp.



Catlin Farish Co.

3-LEAF FILLING TWILL
39″ 68x76 4.00 yd.

Finishes used: Shirting, mercerized, schreinered, silesia, water repellent, imitation mercerized and schreinered, bleached, dyed and printed.

Uses in finished state: Linings, pocketings, shirtings, umbrellas.

Examples of Three-Leaf Filling Twills

Carded:	31″	64x70	4.00	39″ 68x76	4.50
	31″	64x72	3.18	39″ 68x76	4.00
	31″	64x76	3.85	39″ 68x76	4.25
	31″	68x80	4.20	39″ 68x80	3.00
	31″	68x80	3.85	39″ 68x80	2.58
	31″	64x100	4.20	39″ 80x92	3.65
	39″	60x72	3.35	40″ 64x88	4.50
	39″	64x72	4.80	40″ 64x96	4.30
	39″	64x72	3.35	43″ 64x104	3.85
	39″	68x56	5.47	43″ 64x112	3.65
	39″	64x56	5.25	43″ 72x120	3.35
				combed filling	
Combed:	38″	88x140	5.20	26″ 88x112	7.40
	39″	96x160	6.00	umbrella cloth	

FOUR-HARNESS TWILLS

Four-harness (or four-leaf) twills include: (1) Three up, one down, or 3/1, warp-face twills, known as *four-leaf warp twills.* (2) One up and three down, or 1/3, filling-face twills, known as *four-leaf filling twills.* Both these warp and filling twills have bolder twill effects than any of the three-harness (drills, jeans, three-leaf filling twills). (3) Two up and two down, or 2/2, even-sided serge or reversible twills. (4) Miscellaneous four-leaf twills made (a) with a very heavy, soft filling yarn for napping, producing finished warp-face fabric known as *canton flannel;* (b) with a herringbone-twill effect, warp face; and (c) with a broken-twill effect, filling face.

Four-Leaf Warp Twill

Four-harness (or four-leaf) warp-face twills are strong, firmly woven cloths in

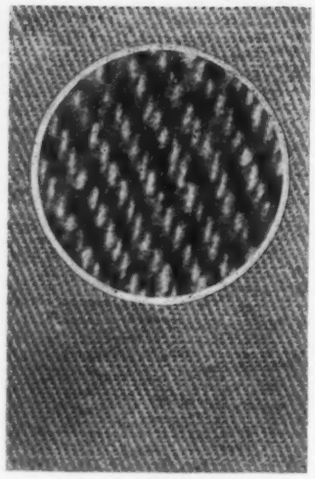
medium and heavy qualities. They are stronger in the warp, which forms the twill face and which bears most of the wear in use. The diagonal twill effect resembles the bolder twill of the gabardine. Four-leaf warp twills are used mostly for uniforms, overalls, slacks, and shoe linings. Carded yarns are commonly used. The twill line runs upward to the left. In weaving, each warp end floats over three filling picks and interlaces in passing under the fourth pick. Each successive end interlaces with each successive pick to form a regular twill formation.

Uses in gray state: Tents, bags, shoe linings (when starched), sails.

Finishes used: Plain-starched, mercerized, preshrunk, napped (on back), rubberized, bleached, plain-dyed, resist-printed white-stripe effects on aniline black (semi-dress trouserings), vat-printed stripe effects on white grounds, etc. (for summer slacks), painted awning stripes (on white or mineral-dyed ground); water-repellent.

Uses in finished state: Shoe linings, hunting and work clothing, knickers, military uniforms, dress uniforms, summer slacks, trouserings, boy-scout clothing and hats, raincoats, tents, sails, awnings, canopies, beach pads, chairs, baby swings, etc.

Widths: 29½, 30, 37 in.—also 31, 39, 40, 59, 67, and 69 in.



Iselin-Jefferson Co.

4-LEAF WARP TWILL
37″ 88x40 2.85 yd.

Constructions: 68x42 to 108x52.

Warp yarns: 11s to 24s.

Filling yarns: 8s to 22s.

Examples of Four-Leaf Warp Twills

30″	88x37	3.25		31″	88x56	1.90
30″	88x37	3.00		37″	80x40	4.00
30″	88x37	2.85		37″	82x44	1.50
30″	88x38	2.50		37″	88x40	3.40
30″	88x48	2.31		37″	88x40	2.85
30″	88x48	2.00		37″	86x42	2.85
30″	88x56	2.15		37″	86x42	2.00
30″	88x58	2.00		37″	86x42	1.75
30″	104x48	2.65		37″	88x42	2.35
30″	104x48	2.50		37″	88x44	2.35
30″	104x48	2.31		37″	104x48	1.75
30″	104x48	2.15		37″	104x52	1.75
30″	104x48	2.00		39″	92x58	1.50
37″	76x42	1.50				
40″	76x42	1.35	Unusual because of low number of ends per inch			
57″	68x42	1.62				
59″	72x40	1.60				
30″	92x56	2.20				
36″	88x58	1.67	Herringbone twills			
39″	92x58	1.50				
41″	88x56	1.92				
30″	88x58	2.00	Herringbone with Z and S twist			

Special twills are made with combed ply yarns and used for army suitings—44″, 108x60, 1.50, 2x2; and for the marine corps—31″, 108x60, 2.15, combed warp, carded filling, single yarns.

80s COMBED YARN

Calculating machinery organization

By Gilbert R. Merrill
Lowell Textile Institute

THIS IS the sixth article of a series on calculating cotton-yarn organizations. Next month Professor Merrill will discuss print-cloth yarns and, shortly thereafter, coarse-sheeting yarns.

YARNS from 60s to 120s are used in a variety of goods. Sheer fabrics, high quality goods, and those in which strength is a considerable factor but in which weight must be kept down, all require this class of yarns. Mechanical fabrics offer a considerable field for these yarns.

Among the fabrics using these yarns are airplane and balloon fabrics, typewriter ribbons, insulation yarns, lawns, organdies, piqués, fine sateens, muslins, marquisettes, handkerchief cloths, hosiery, and laces.

With standard draft these yarns require four roving operations. They are spun from either single or double rovings. Two drawing operations are common, and combing is a necessity.

Double roving in spinning. Four roving operations.
Spinning contraction 6.6%. Two drawing operations.

Spinning contraction 6.6%	934)	80 00
Spinning draft	10 70)	85 50 at front roll.
		8 00
	x	2
Jack draft	7 00)	16 00-hank jack roving.
		2 29
	x	2
Fine draft	6 00)	4 58-hank fine roving.
		76
	x	2
Intermediate draft	5 00)	1 52-hank intermediate roving.
		30
	x	2
Slubber draft	4 00)	60-hank slubber roving.
		15-hank or
		55-grain second-drawing sliver.
Second-drawing draft	x	5 70
	6)	314
		52 3-grain first-drawing sliver.
First-drawing draft	x	5 73
	6)	300
		50-grain comb sliver.
Comb draft	x	68 88
Comb noil 18%	82)	3444
Comb heads	6)	4200
		700-grain ribbon laps.
Ribbon-lapper draft	x	4
Ribbon-lapper heads	4)	2800
		700-grain sliver laps.
Sliver-lapper draft	x	2 06
Sliver-lapper doublings	32)	1440
		45-grain card sliver.
Card draft	x	110
Card waste 6%	94)	4950
	437 5)	5270
		12-oz. picker lap.

Buckley opener
Bale-breaking feeders

Long-Draft Modification: The following organization is a modification of the preceding one, showing how long draft in spinning may vary the sizes and drafts to be used. This does not provide for long draft in roving; but it is planned with the controlled-draft drawing, where the card slivers are made into a narrow lap on a doubler and then fed to the drawing frame in that form.

Spinning contraction 6.6%	934)	80 00
Spinning draft	22 80)	85 50
		3 75
	x	2
Jack or fine draft	6 67)	7 50-hank jack or fine roving.
		1 125
	x	2
Intermediate draft	5 62)	2 25-hank intermediate roving.
		40
	x	2
Slubber draft	4 33)	80-hank slubber roving.
		185-hank or
		45-grain drawing sliver.
	x	17 77
Drawing draft (controlled draft)	16)	800
Drawing doublings		50-grain card sliver.

From here back, follow the preceding organization.

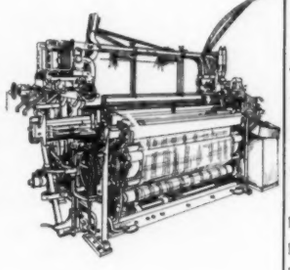
IS THE LOOM O. K?

Items to be listed on loom-inspection cards with notes offering suggestions on details

By S. C. Mahaffey

THE accompanying inspection form for a 2x1-box dobby or cone loom can be printed on a card measuring approximately 4x9 in. and placed on the loom during the making of the last cut of the warp. In the blank spaces, of which there might well be more than are indicated here, the foreman, second-hand, overseer, or superintendent should write in by hand any additional work to be done while warp is out, or on new warp.

Below is given a series of sketchy notes offering suggestions on details of the first, very important, nine items listed on the card. It might be well to print these notes in fine type on the back available for ready reference.



Date _____ Loom _____

Time Warp Came Out _____

LOOM INSPECTION CARD

1. Loom cleaned thoroughly by watchman, porter, loom cleaner.....
2. Shuttles put in A1 condition by fixer .....
3. All nuts tightened .....
4. Everything oiled and greased by oiler .....
5. Reed movable sidewise and backward .....
6. Protection well checked by fixer .....
7. Harness timed front center .....
8. Loom picking at 2¾ to 3". Sweep: plain, 8"; box, 9" .....
9. Brake set to stop before reed hits cloth .....
10. Sand-roll gears and bearings checked .....
11. Cloth-roll friction kept loose .....
12. Filling checked by smash-hand or filling boy .....
13. Pick wheel and let-off motion checked .....
14. Warp tension and shed checked by fixer .....
15. Time mounted .....
16. Elapsed time due to warp out .....
17. Loom accepted as OK by fixer .....
18. Loom and cloth OK by second-hand .....
19. Card returned to office. Date .....
20. .....
21. .....
22. .....
23. .....
24. .....

Inspection card for 2x1 - box dobby or cone loom as proposed by author

1. Loom cleaned thoroughly. See that watchman does good job of cleaning iron work with trisodium phosphate and water. Clean waste from press roll, gear train, and sand drum.

2. Shuttles put in A1 condition: Good fur, pins, eyes, rings. Points sharp, spindle straight, nuts on lift screws and all rough places well sandpapered. Tension pins and screws tight, and holes waxed. Right loom number on each shuttle. All exactly same size, weight, and style.

3. All nuts tightened: Pay special attention to all cams, split cams in particular. Four bolts and two setscrews all tight. Pick arms. Ball carriers. End play in crankshaft, camshaft, rocker shaft, pick shaft. Nut on center bearing on brake rod. Three nuts on both box-side and plain-side baskets, cross-girt bolts—two on front side, two on back side. Gear guards tight over driving motion, also dobby motion, dobby braces. Loom fast on floor, motor-stand legs fast. Loose crank arms. Play in shuttle cells. Binder springs on both sides, box and plain, tight. Spindle washer, packing behind rawhide picker, picker rod tight. Rocker-shaft sleeves tight and oil holes in line. Picker and nut on push rod tight. Collars on spiral-gear shaft in place and tight.

4. Everything oiled and greased. Crank- and camshaft bearings, pick-shaft bearings, rocker-shaft side and center bearings, protection-shaft bearings, dobby rocker-shaft bearings and swivel. Lift-rod swivels, beam pins, let-off motion, push-rod bearing, cloth-bar bearing, brake-band extensions, brake and shipper handles, center springs, reed pivots.

5. Reed moveable sidewise and backward. Reed should move freely sidewise and backward, but not so much as to cause a bang. Reed lined. Reed pivots adjusted to take play from reed cap, also to level glass rod—with felt on lay. Center springs on, and adjusted equally.

6. Protection well checked. 5-in. daggers—striking together and no burrs on bottom. Bunter spring not broken and both bolts have nuts on them, setscrews too. Bunter bolt has nut and is tight. Keep steel from coming out. Good bunter steel and not lying too low. Both rubbers good, not broken. Bunter knock-offs—one on one side of each bunter and tight, also set against brake handle. Two protector-shaft springs, one on each end only tight enough to pull daggers down. Both protection-shaft bearings tight and adjusted to take end play from shaft. Protection-shaft coupling has four screws in it and all tight. Plain-side finger has setscrew and two jam nuts with finger tight against swell. Box-side finger has little play between it and binder, with setscrew and cotter pin in finger shaft. Set daggers clear enough from bunter to allow piece of paper to be slipped under them when they come to front.

7. Harness timed front center. Set harness time $\frac{1}{8}$ in. early. Warp tension and shed, item **14**, should be checked first. Jacks and back in good condition on dobby looms with jack loops slipped up two at a time from bottom upward. On cone heads, place chains on cone right and see that they don't jerk. See that no cables are worn and harness wires not too long so they ride sheaves. Both sheds clear felt $\frac{1}{16}$ in. and rise same height on reed. Two springs on each end of each shaft fastened to 1-in. piece of leather. Springs to pull straight down. Each shaft to have two hooks at top one each end.

8. Picking: Good sticks both ends, also sweep sticks. Good lug straps and not run too low. Fiber on box-side stick. Pick $2\frac{3}{4}$ to 3 in. Sweep plain side not over 8 in.; box side, not over 9 in. Plain-side parallel bottom set right, with good fiber plugs. Both pickers, rawhide and leather, in good shape. Pick arms tight. Ball carrier set right distance from collar on pick shaft and tight. There should be $2\frac{1}{2}$ in. between centers of pick cam and ball. Pick balls to turn freely and not to ride cams. Pick points tight; cams set for point to pass over pick ball center.

9. Brake set to stop before reed hits cloth: Good leather—and keep it free of oil. Short extension at top with two bolts tight. Short clearance spring on. Long extension at bottom with two bolts tight and long spring on. Stops before reed hits and does not drag when loom is turned backward. $4\frac{1}{2}$ in. center stop daggers and knock-off dogs to be set up at all times.

TEXTILE WORLD ANALYST

Bull market continues in most branches of Textiles

Textile mill activity during the first seven months of 1936 was 16% above that for the same period of 1935. As demand, and consequently production, are continuing at a high rate, the total for this year is sure to be well above last year. Incidentally, mill activity in August—the last month for which full statistics are available at this writing—was 34% above that of a "normal" August (1924-31 average). . . . Accompanying this continued increase in production, based on broadening demand, has been a steady improvement in manufacturing margins, and therefore in profit possibilities.

MOST of the textile markets are rolling merrily along. Sales are heavy, prices strengthening, and stocks short. These comments apply particularly to the cotton and rayon divisions.

General expectation is for continued strength for at least six months, with some observers extending their hopefulness to a year.

Summaries for the individual branches follow:

Cotton: Another exciting month developed in cotton goods. After the bullish cotton report, trading was extremely heavy and many prices advanced. After a temporary lull, another spurt started at the end of the month. Manufacturing margins in carded cotton fabrics increased, as will be noted by reference to Table I. The average for September was 0.4c. over August and was the highest on record since September, 1934. The carded yarn margin (Table II) averaged the same in September as in August.

Wool: The wool goods market has been lagging, despite the existance of general optimism on all sides. Buyers are slow to commit themselves on spring business beyond minimum requirements, despite threats of higher prices in 1937 due to various causes. The most talked about cause is increased labor cost due to charges against payroll to support recent social legislation. Tropicals and gabardines have been bought on a larger scale than last year's initial business; prices advanced early in October. Sales managers are hopeful that the trend will turn during the next month.

Rayon: Demand for yarn continues active and stocks in hands of producers continue to decline. It is estimated that instead of the equivalent of one month's sales, which is the normal surplus, producers' stocks now average only about one-third of a month. Sharp rise in movement of cotton goods in latter part of September brought sympathetic increase in call for certain rayon fabrics, especially in the final week.

Silk: Raw silk prices held their own relatively, in September, due to active buying. September deliveries were higher than recent months. Reacting psychologically to the Silk Parade, certain branches of the silk fabric trade firmed up somewhat during September. Considerable goods were moved and there was marked interest in satins for underwear manufacture.

Knit Goods: The situation in hosiery is generally strong, the uncertain labor aspect being the only cloud on the horizon. Demand for quality hosiery has been so strong that some firms find difficulty in placing orders. . . . September volume is reported to be from 12 to 17% above the same month last year, and prices of spring lines tend upward. Tone in all branches is strong and optimistic. . . . Pre-opening interest in the Oct. 15 showings of bathing suits has been active and manufacturers expect good early bookings on the new season's lines. All divisions of outerwear are very confident regarding winter and spring outlook.

Although most prices rose slightly in September, the movement was not sufficient to cause any change in TEXTILE WORLD's price index numbers, and, with the exception of raw silk which lost one point, August figures were duplicated all along the line.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	21.4	September, 1935	17.9
October, 1933..	19.1	October, 1935..	17.7
January, 1934	18.4	November, 1935.	16.4
April, 1934...	17.6	December, 1935.	16.2
July, 1934....	15.5	January, 1936..	17.2
August, 1934..	16.6	February, 1936.	16.5
September, 1934	18.6	March, 1936...	15.5
October, 1934..	17.4	April, 1936....	14.3
November, 1934.	15.8	May, 1936.....	14.3
December, 1934.	16.2	June, 1936.....	15.3
January, 1935..	16.2	July, 1936.....	16.9
February, 1935.	16.0	August, 1936..	18.0
March, 1935...	15.9	September, 1936	18.4
April, 1935....	16.1	Sept. 2 ..	17.6
May, 1935.....	16.0	Sept. 9 ..	18.3
June, 1935.....	16.5	Sept. 16 ..	18.6
July, 1935....	15.2	Sept. 23 ..	18.8
August, 1935...	17.1	Sept. 29 ..	18.9

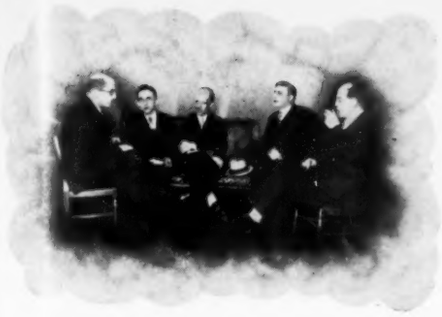
TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933...	23.5	September, 1935	15.4
October, 1933..	20.0	October, 1935..	15.8
January, 1934..	18.3	November, 1935.	16.3
April, 1934....	15.9	December, 1935.	16.3
July, 1934.....	14.7	January, 1936..	18.4
August, 1934...	15.3	February, 1936.	17.5
September, 1934	15.6	March, 1936...	16.3
October, 1934..	14.6	April, 1936....	15.6
November, 1934.	13.5	May, 1936.....	14.8
December, 1934.	13.5	June, 1936.....	14.6
January, 1935..	13.5	July, 1936.....	15.0
February, 1935.	13.9	August, 1936..	16.5
March, 1935...	14.4	September, 1936	16.5
April, 1935....	14.1	Sept. 2 ..	16.0
May, 1935.....	13.8	Sept. 9 ..	16.3
June, 1935.....	14.5	Sept. 16 ..	17.0
July, 1935.....	14.3	Sept. 23 ..	16.8
August, 1935..	15.3	Sept. 29 ..	16.4

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufacturers, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index Raw Silk	Rayon Index
1923-25	100	100	100	100	100	100	100	100	100
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	58	46	59	46	49	59	71	82	82
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave.	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
July 1935	61	68	65	69	56	59	70	89	20	23
Aug. 1935	58	68	66	69	56	59	70	89	23	24
Sept. 1935	55	66	68	69	58	60	70	89	25	24
Oct. 1935	57	68	68	69	60	61	73	92	27	24
Nov. 1935	60	70	69	72	62	65	75	92	27	24
Dec. 1935	60	71	69	72	64	66	76	92	26	24
Jan 1936	48	67	63	68	67	73	75	93	26	24
Feb. 1936	42	62	58	67	72	81	77	93	24	24
Mar. 1936	42	61	57	66	73	81	77	93	23	24
Apr. 1936	43	60	55	64	68	75	76	90	22	24
May 1936	43	57	54	64	67	75	76	90	21	24
June 1936	44	58	57	65	67	75	76	90	20	25
July 1936	48	61	61	70	69	75	75	90	22	26
Aug. 1936	45	62	63	70	70	75	74	90	23	26
Sept. 1936	45	62	63	70	70	75	74	90	22	26



Idea to Institute—

How a thought generated in Atlanta ten years ago became a vital force in a great industry

By Douglas G. Woolf

Editor, TEXTILE WORLD

TEN years ago, as a reporter, we trailed an idea. We trailed it from Atlanta to Greenville to Washington to New York and then back again many times. We wrote about it, talked about it, dreamed about it. When it finally matured, it was the Cotton-Textile Institute. That is why we can write a personal story about the Institute, on its tenth birthday.

It started—no one knows where. In the minds of many men, of course. It would be unfair, here, to try to allot credit to any individual for its conception. We must start at the time of its actual birth, when the formal record begins.

That momentous occasion was the annual convention of the American Cotton Manufacturers Association in Atlanta, Ga., May 18 and 19, 1926. But here too the mention of only that association is not fair. This was no accidental birth. Prior to the meeting there had been discussions with the National Association of Cotton Manufacturers, the Association of Cotton Textile Merchants of New York, and the various State associations. Pledges of support had been secured from all those organizations.

But it was the A.C.M.A., under the presidency of W. J. Vereen, that started the offensive, at its own convention. And it was George S. Harris, of that organization, who was selected to carry the ball. Mr. Harris made a definite recommendation for a Cotton-Textile Institute, and offered the following as its proposed functions:

Secure, tabulate and distribute data covering all phases of industry and commerce affecting cotton textiles.
Check and advise entire industry and trade.
Publish periodically price index by construction groups, including all yarns.
Conduct group advertising at home and abroad.
Conduct research relating to extension of use of cotton textiles.
Direct group activities in export trades.
Direct in all legislation affecting cotton textiles.
Direct as to trade customs, settlement of disputes, etc.
Coordinate work of existing associations.

Since we have started to name names, we shall have to extend the list. Our own records show that those who took part in the discussion of the Institute at the Atlanta meeting included J. A. Rousmaniere (president), Floyd W. Jefferson and Leavelle McCampbell, all representing the Association of Cotton Textile Merchants of New York; William B. MacColl (president) and Robert Amory, both representing the N. A. C. M.; and B. E. Geer, Capt. Ellison A. Smyth, Stuart W. Cramer, John A. Law, and W. A. Erwin, all active in the A. C. M. A. (Obviously, this list is merely a starter; it does not include the many men who contributed their thinking to the idea prior to the meeting, nor those who, purely as individuals, plunged in immediately and helped.)

The one thing about this Atlanta meeting which impressed us, as a blasé reporter, was that—unlike most conventions—it did not end in talk. We had sat around while so many associations "resoluted" about the state of the nation and of the industry, that we expected this crowd to do the same thing. We anticipated a resolution "endorsing" the idea of an Institute—and then adjournment.

Well, they fooled us. They appointed a steering committee comprising the retiring A. C. M. A. president, W. J. Vereen; the incoming president, S. F. Patterson; and the first vice-president, James P. Gossett. [Incidentally, Mr. Patterson died a short time after his election and was succeeded by Mr. Gossett.] This steering committee in turn appointed a Committee on Statistics and Research.

Nor did the action stop here. The latter committee arranged to meet in Greenville, S. C., May 25—just

AMONG THOSE ACTIVE IN STARTING THE COTTON-TEXTILE INSTITUTE

W. J. Vereen | George S. Harris | John A. Rousmaniere | William B. MacColl | James P. Gossett | Capt. E. A. Smyth | John A. Law

Walter D. Hines (1926-1929)

George A. Sloan (1929-1934)

one week later! They were all steamed up and ready to go, as you can see.

Show Takes to the Road

Next stop Greenville. There, a Special Committee on Stabilization of the Industry was constituted with Mr. Vereen as chairman and with three joint secretaries —W. D. Adams, Hunter Marshall, Jr., and Stanley Converse, who were, respectively, secretaries of the A. C. M. A., the North Carolina association, and the South Carolina association.

From Greenville to Washington, the following week (June 1), where the above-mentioned committee with the imposing name had luncheon with Secretary of Commerce Herbert Hoover; Dr. Julius Klein, then director of the Bureau of Foreign & Domestic Commerce; and E. T. Pickard, then as now chief of the Textile Division of that department. It was an open secret that the cotton manufacturers wanted to secure Mr. Hoover for president of the Institute, and equally open and as much a "secret" that his ambitions for the Presidency were the main obstacle in the way. However, they secured his ardent interest in their plans—which, incidentally, he maintained throughout his term as President.

The net result of the Washington meeting was the decision to hold a meeting in New York the following week, under the auspices of the National Council of American Cotton Manufacturers, to make this movement a truly national affair. At the New York meeting, June 10, a special committee of ten was selected by Wm. B. MacColl, president of the N. A. C. M., and James P. Gossett, president of the A. C. M. A., to make a study of other industries which had organized on a national scale.

The personnel of the committee of ten was: *For New England:* Andrew G. Pierce, Henry F. Lippitt, Ward Thoron, Edwin Farnham Greene and Robert Amory. *For the South:* Stuart W. Cramer, H. R. Fitzgerald, B. E. Geer, John A. Law and W. J. Vereen. Messrs. Amory and Cramer were named joint chairmen.

Institute Formally Launched

Then came a lull while this committee deliberated—but not too long a lull at that. On July 21—only a little more than two months after the idea had been first proposed publicly at Atlanta—the committee of ten submitted its report to a larger meeting in New York, and the Cotton-Textile Institute was formally organized. Support from more than 50% of the industry had been assured in advance! Incidentally, by the end of that year the membership comprised more than two-thirds of the active spindles.

The officers named at that meeting were: President, Henry F. Lippitt; vice-presidents, Stuart W. Cramer and Robert Amory; temporary secretary, William F. Garcelon; treasurer, Gerrish H. Milliken. Subsequently, at the first annual meeting of the Institute held Oct. 20, that year, Mr. Lippitt retired as president and became chairman of the board. George A. Sloan, formerly secretary of the Copper and Brass Research Association, was named secretary. In December, the office of president was finally filled by the election of Walker D. Hines, outstanding lawyer and former director-general of railroads of the United States.

Thus was started the famous Hines-Sloan combination which continued for five years. During three of those years Mr. Hines served as president, but in 1929 resigned that office and was succeeded by Mr. Sloan. For two more years Mr. Hines was chairman of the board; in 1931, he resigned that position also and both functions were vested in Mr. Sloan. The latter continued as president of the Institute during all the hectic years of NRA and AAA, and during the general textile strike in 1934. He resigned Jan. 1, 1935, being succeeded temporarily by Goldthwaite H. Dorr, who had served as counsel for the Institute since its inception. In October, 1935, Dr. Claudius T. Murchison, formerly chief of the Bureau of Foreign and Domestic Commerce, was named president, and Mr. Dorr became chairman of the board.

Initial Lines of Action

For several years after the formation of the Institute, its activities were in three major directions: Statistical, Costs, and New Uses.

The statistical department, headed by Paul B. Halstead

AMONG THE VICE-PRESIDENTS OF THE

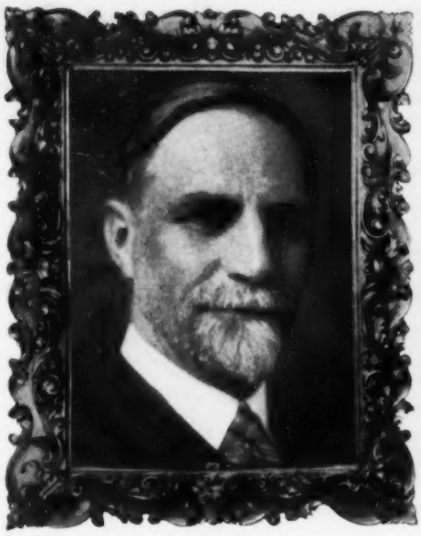
Henry F. Lippitt

Stuart W. Cramer

Robert Amory

Thomas M. Marchant

B. B. Gossett



Goldthwaite H. Dorr (1935)

Dr. Claudius T. Murchison (1935—)

—who is also secretary—has worked closely in conjunction with the Association of Cotton Textile Merchants of New York. Their joint effort laid a foundation of fact which enabled cotton manufacturers to act more intelligently in balancing production to demand. If this factual basis had not been made available, there could have been none of the periodic and wide-spread curtailment which warded off chaos during the dark days of the depression.

The cost section—headed originally by George W. Duncan who was succeeded later by Sydney P. Munroe—from the first disseminated sound information on both principle and method in cost determination. Its field force has been constantly in touch with individual manufacturers. The result of this vital activity has been to improve the individual pricing policies of the industry. The extent to which this cut down losses during the depression—and has enhanced the chance for a profit since then—cannot be expressed in figures, but nevertheless was a contribution of the greatest importance.

The new uses section—which Ernest C. Morse first headed, and which is now under the direction of Charles K. Everett—has been responsible for a wide range of activities for the purpose of finding new outlets, and expanding existing ones, for cotton goods. Probably the outstanding job has been National Cotton Week. This idea, incidentally, was the product of the joint minds of George Sloan and Cason Callaway, who took it to Washington and secured the endorsement of the Secretaries of Commerce and of Agriculture. The special advertising activity for styled cottons is another outstanding activity. Cotton roads represent a third. However, there are hundreds of other items all of which add up to money in the pocket for cotton manufacturers. The latter have had their troubles in the last ten years —but we believe they would have been much more serious ones if this promotional activity had not been going forward.

Institute Enters a New Phase

These three branches of effort—statistics, costs, new uses—have constituted, and still constitute, what might be called the "bread-and-butter" jobs of the Institute. In fact, without the groundwork which they laid, the broader management enterprises could never have been undertaken. These enterprises included the 55-50 plan, the plan for the elimination of night employment for women and minors, and—subsequently—Code No. 1.

Decision to enter this phase of management policies was the most important step taken in the history of the Institute. It changed the whole course of its future and made it a vital, positive force.

That decision was made early in 1930 and was in part the indirect outcome of a conference with President Hoover in January of that year. The announcement was made in February that the C.-T. I. recommended to cotton manufacturers a shortening of the work-week to 55 hours, day shift, and 50 hours, night shift. [In these days of the 40-hour week it seems peculiar to call that a "shortening"—but such were the facts.]

The plan caught on—and in a very short while an overwhelming majority of the industry endorsed it. Membership of the Institute increased sharply because of this step in leadership. Returning from a trip South that spring, we recorded in these columns:

"The net impression we gained was a conviction that the industry, as a whole, has a new sense of leadership and of coordination."

The effect of this attitude was noted in a number of ways. For example, in August of that year (1930) it became very evident to this observer, and to others, that mill executives, through their actions that summer, had convinced buyers that they were determined to maintain a proper balance between production and demand.

The best was still to come, however. In September, 1930, the executive committee recommended, not later than March 1, 1931, the elimination of night employment of women and minors. The directors approved this recommendation and the industry at large overwhelmingly endorsed it at the annual meeting in October, 1930. It became the "law" of the great majority of the industry and did more than any one thing to establish the cotton textile industry in the minds of the public as a social-minded industry. Recognition of this accomplishment assumed tangible form when the C.-T. I. received

COTTON-TEXTILE INSTITUTE SECRETARY

Russell H. Leonard

G. Edward Buxton

Donald Comer

Frank Neild

Paul B. Halstead

AMONG THE "WAR-TIME" LEADERS OF THE C.T.I.

Ernest N. Hood

William D. Anderson

Harry L. Bailey

Bertram H. Borden

Cason J. Callaway

Chas. A. Cannon

A. E. Colby

H. Nelson Slater

Robert R. West

the 1932 medal of award from the American Trade Association Executives for the most outstanding service performed that year by a trade association for its industry. In presenting this medal, Secretary of Commerce Roper stated that the award was given to C.-T. I. "for its persistent and constructive methods in the elimination of undesirable working conditions for its thousands of employees; for its introduction of modern cost accounting in cotton mills; for its development and promotion of new uses for cotton and cotton products; and for the example it sets to American business of a trade association which is helpful to industry and public alike."

[Incidentally, speaking of awards, TEXTILE WORLD received honorable mention, in the first annual editorial contest of the Associated Business Papers, in recognition of the support rendered by this publication in connection with the organization of the Cotton-Textile Institute and its development after its formation.]

The next great contribution came in the spring of 1933 when George Sloan advised President Roosevelt that the C.-T. I. had recommended to the industry that during the emergency period, work-week in cotton mills should not exceed 40 hours, and productive equipment should not be operated more than two 40-hour shifts per week. This step put the cotton industry in the vanguard of the recovery movement and led to the distinction of Code No. 1.

During these stirring days, the Cotton Textile Industry Committee was the medium for negotiations between the industry and the Government. Its original personnel included: George A. Sloan, president of the C.-T. I.; Thomas M. Marchant, president of the A. C. M. A.; Ernest N. Hood, president of the N. A. C. M.; and William D. Anderson, Robert Amory, Harry L. Bailey, Bertram H. Borden, G. Edward Buxton, Cason J. Callaway, Charles A. Cannon, A. E. Colby, Donald Comer, Stuart W. Cramer, B. B. Gossett, R. E. Henry, Gerrish H. Milliken, Frank I. Neild, H. Nelson Slater, Robert T. Stevens, and Robert R. West.

This committee became the nucleus of the Cotton Textile Code Authority which administered Code No. 1 after its effective date July 17, 1933. George Sloan became chairman.

It would be exciting to record here the history which followed Code No. 1. However that is all fresh in the minds of members of the industry; consequently we shall close this record with the beginning of NRA. It should be emphasized that students of the events which followed give major credit for the successful experience of the cotton textile industry under the NRA to the groundwork of industry thinking which had been laid by the C.-T. I.

In this necessarily sketchy review, we have had to overlook many miscellaneous activities which contributed to the sum total of industry leadership. These included such varied undertakings as the division of the industry by groups: print cloths, carded yarns, narrow sheetings, etc., etc.; the formation of a cotton committee to confer with committees of organizations representing growers or distributors of raw cotton; the activities along merchandising lines, and also looking toward the development of export trade; attempts to stem imports of foreign goods; the holding of style conferences jointly with other associations; the gift of longer sheets to humanity; the definition of fair trade practices jointly with the Cotton Textile Merchants Association and the Converters Association; the creation of the General Arbitration Council of the Cotton Textile Industry and of the Textile Export Association—and a host of other contributions.

Nor have we been able to record the names of all the men who participated in this history-making undertaking. For instance, it is generally agreed that Lee Rodman helped materially to propagate the idea of an Institute long before its foundation. The late Henry F. Lippitt and the late H. R. Fitzgerald were bulwarks of the Institute idea. Then, too, in addition to the officers named previously in this article, the following served as vice-presidents of the C.-T. I. at various times: Thomas M. Marchant, B. B. Gossett, Russell Leonard, G. Edward Buxton, Donald Comer, R. E. Henry and Frank Neild. W. Ray Bell, now president of the Association of Cotton Textile Merchants, at one time served as executive vice-president of the Institute. Gerrish H. Milliken served faithfully as treasurer during most of the ten years. Also, men who served on the staff at headquarters other than those already mentioned, included J. W. Proctor, Joseph P. Babcock, Frederick A. Colt, Miss Catherine Cleveland, and William V. Lawson. William M. MacLaurine, secretary of the A. C. M. A., and Russell T. Fisher, secretary of the N. A. C. M., have worked in hearty and effective cooperation with the C.-T. I. throughout its history. Gov. O. Max Gardner has been active as legal representative in Washington. To those whose names have been inadvertently omitted—our apologies.

For the future, we imagine the best indication of the Institute's possibilities is the recent addition of new members representing a sizeable increment in spindleage. The membership, on the basis of percentage of total spindles, is above the "top" reached in pre-code days. In view of the general reaction against cooperative effort which developed after the death of NRA, this gain shows an acceptance of the Institute by cotton manufacturers, code or no code. It is a safe bet that the C.-T. I. has become a permanent part of its industry, and that the industry will be better off because of it.

ADVERTISING PAGES REMOVED

THE OVERSEERS' CORNER

When to Eat

By a Mill Superintendent

ONE of the store-keepers has a sandwich cart that he pushes around the mill. He has the usual assortment of candies, sandwiches, soft drinks, etc., and does a pretty good business, but I always seem to be tripping over him when I go through the mill and, of course, the operators like to stand around and take as much time as they can in negotiating a deal involving a stick of gum. The situation hasn't pleased me at all, but I think that I have arrived at a satisfactory arrangement.

The easiest thing to do, of course, would be to refuse permission to the owner to take his push-cart into the mill but that would cause some grumbling on the part of the help and it is one of those cases where it just isn't important enough to make an issue. Further, a number of the workers have come to depend on the cart to supplement their lunches. On the other side of the fence is the undoubted fact that the mill stays cleaner when there are no candy wrappers or bread crumbs to be scattered about.

The plan I have now put into effect is to allow the push-cart in the mill only at a certain time in the morning. When the cart arrives in one of the departments, a ten-minute rest period starts. Employees are supposed to make their purchases and consume the food—if any—during this period and at no other time. Tests have shown that the efficiency of workers is increased if they are allowed to have a bite to eat or a glass of milk mid-way between their regular meals, and I think that the new set-up will satisfy the workers and, at the same time, prevent those social gatherings around the cart at any and all hours.

Night Overseer Should Take Orders From Day

Editor, Overseers' Corner:

I think that C.J. in the July issue and A.B.B. in the August issue are altogether on the wrong foot in their comments on the night vs. day overseer question. They defeat their own contention when they say that no two men can run the same job. This statement is beyond argument, but what they contend is just the reverse. When the day overseer runs the day shift, and the night overseer runs the night shift independently, you have just what they claim they do not want—two men running the same job even though they run it at different times.

Any time that you have more than one man on the job, someone must take the lead or you get less than full efficiency. Naturally, first you have the superintendent and next his assistant. Then you have the overseers, followed by their assistants; and any man who is not an overseer is an assistant whether he be night overseer or second hand. When you take the job of night overseer, you are taking a job as assistant to the day overseer and nothing that you can say or do will change that fact. A night overseer is selected because he is capable of running the job, and because he is material from which an overseer can be made. If, after he gets his night job he lets it go to his head, doesn't want to take orders from his overseer, and considers himself the big stick on the job, he is certainly showing that he is not fit material to be made an overseer and is riding for a fall.

If you *are* the man for the job, the overseer will be glad to let you take all the responsibilities of the night shift off his hands, he will give you all the backing that you need to run the job, and will help you in every way possible to make the most of your opportunities, both for the good of the job and for your own good. In other words, he will stand behind you, not in front of you, for he has traveled the road that you are now traveling.

In conclusion, I am a night overseer. I take orders from the day overseer, for he is the boss. He has helped me over many rough spots, and it is never too late for him to come to the mill if I send for him. He helps me run the night shift and I help him run the day shift. We run the department and get results. Some day I will have the opportunity of running his job. When that day comes, I hope that he has also moved up and will still be my boss.

L. R. PITTENGER

Vacations With Pay

Editor, Overseers' Corner:

Vacation grants can become a bone of contention between different workers who feel that some are more favored than others, especially with reference to the selection of the time during which the vacation will be granted. Mills having slack periods recurring at the same time yearly will do well to adapt such times for vacation periods, and allow everyone who is going on vacation to leave at the same time. In some cases, it will even pay to close down the mill for the duration of the vacation, allowing everyone to go at once, with the exception of a skeleton office force and the maintenance crew.

The vacation period may be used for repairing machinery and equipment that may need repairing, just as inventory time is so often used. Thus, workers returning from their vacations will find equipment all in good order, and, with refreshed workers on overhauled equipment, much better progress will be made with the work. This system leaves no room for argument between workers as to the management playing favorites. Also, it gets the vacation period over and out of the way quickly, rather than stretching it out over two or three months, and lowering the efficiency of the entire mill for that length of time. J.H.

A Worker's View

Editor, Overseers' Corner:

Textile employers should watch their petty bosses. The pettier they are, the more they need watching. This problem, always important, is accentuated when business is slow.

When work is scarce and has to be divided, let the division be made by someone high enough in authority to be impartial and not to be swayed by personal likes and dislikes. If the petty boss is allowed to do it, favoritism is certain and trouble will surely follow. Resentment, concealed but dangerous, usually develops into sabotage. In a mill running fine yarn, say 80/2, it is comparatively easy to drop $5 or $10 into the waste can, and it is no trick at all to jab the end of a truck into a warp. Of course, such actions are all wrong, and only a small percentage of the help would do them, but that small percentage can be aggravated and increased.

Here is a practical illustration of how it works: in a room having ten male workers there is enough work for about four; the boss divides the work; two men, both cousins of the boss, get about four days a week—and both own their own homes clear and have no dependents except their wives, while one even has two grown children at work and lives with one of them; the other eight men get a day or two a week, sometimes less, and, with two exceptions they need money worse than the first two, par-

CONTRIBUTIONS

Contributions to "The Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the narrative on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

ticularly one man who has lost his home. The firm has always been good to the help and probably doesn't know anything about this. These conditions are absolutely true.

Of course, some men are more capable than others, but an average has to be struck and all have to live. If only the fastest workmen are considered, the others will ultimately revolt. It may be asked why the men do not do something about it, and the answer is that the old hand knows that it is absolutely fatal to oppose his boss. Right or wrong, the spokesman is always branded as an agitator and finds himself out of a job. All of which causes more ill feeling and hatred of all employers—in most cases unjustified, but real. No matter if you do think that your bosses are all right, it is the part of wisdom to follow them up, make them give the help a square deal, and so promote harmony.

A. W. ORKER

Practical Helps for Overseers

Belts on Silk-Rayon Doubler-Twisters

When installing belts on silk-rayon-doubler-twisters, it is good policy to cut the belts at least 6 in. shorter than the length required. A 6-in. piece of the old belt is added to make the necessary length.

After running for two or three days, the 6-in. length of old belt is removed because of the stretching of the new belt. It is then allowed to run a week or two longer, and by this time the belt will be stretched long enough so that a 6-in. lap can be made and the belt cemented. With a good grade of belting, the belt will not have to be further shortened until replaced.

By using the above method, there is a saving of 12 in. of new belting, and the cutting and cementing of an extra lap is eliminated.

P. C. W.

Soiled Knots in Rayon

Technical Editor:

May I offer further comment on your answer to No. 8303, April issue, on soiled knots in rayon?

Without having seen this cloth showing the knots, etc., I am inclined to think that the soiling is coming from the reed, but that it is not due to the mill being located in a soft-coal region. Instead, the basis of the trouble is probably as follows:

On certain types of weaves there is a strong vibration imparted to the reed during weaving. This vibration will cause a black residue to collect at the upper and lower parts of the reed where the shed does not ordinarily touch. When a knot strikes the reed, it naturally offers some resistance to going through and this resistance is enough to cause it to be forced to the top of the reed before passing through. In going to the top, it is soiled by the residue collected there.

I have had this trouble, and the only satisfactory solution I found is to have the weaver at each cut mark take off the reed cap, pass the reed up and down through the warp, thereby getting rid of the residue, and then take the cloth off at that mark when it is woven down.

I sincerely hope that the above may prove of value to No. 8303.

J. M. G.

A Loomfixer's Contribution

I have been fixing a section of shuttle-changing looms since 1926, and I enjoyed reading "Ten Questions on Weaving" by Ivar Moberg in the July number. However, I do not think that Mr. Moberg covered some of the main points on question No. 8 in the article.

The question was "What causes the Draper loom with lock battery to break the transfer bunter and sometimes the shuttle and the box front?"

Mr. Moberg has given some answers, but I think that more shuttles and box fronts are broken by having a poor heel on the transferer, which will cause the bobbin to roll to the front or back, stick the transfer, and damage the shuttle or box front. I have good results by keeping the heel of my transferer smooth, and with just enough of a curve to fit the rings on the bobbins. You must be sure to have the heel of the transferer to the back of the shuttle, and it must clear the back by about ¼ in. Setting it this way will cause the transferer's heel to force the new quill into the shuttle straight, as it is square above the empty quill, since the loom has not reached front center until the empty quill has been ejected. A little grease on the spring clamps once a day helps, as the rings on the bobbins become rusty through conditioning.

I would like to hear more on shuttle-changers.

WILLIS G. ROBERTSON

Questions and Answers

Knit Goods Spotted

Technical Editor:

I am inclosing a piece of circular knit cloth, on which you will notice small spots that have popped up at different occasions, ruining several rolls of this cloth. I shall appreciate your enlightening me as to just what this condition may be and what is causing it. Thus far I have been unable to trace this trouble, as it has not been noticed in the process of knitting or dyeing, but turned up in the cutting room. (8355)

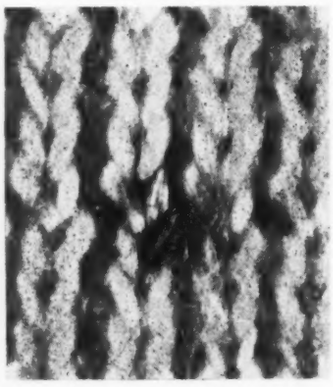


Fig. 1

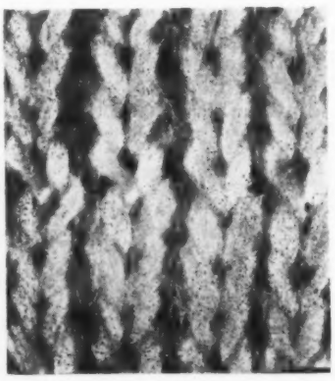


Fig. 2

This stain is not removed with prolonged Soxhlet extraction in either alcohol or ether. Under the microscope, it appears to be a dirty stain, such as one would expect to get when the water used to scrub the floor had been splashed on one of the cones or bottle bobbins on the knitting machine. From the appearance of the stain in the yarn under the microscope, it would appear that the yarn had acquired this stain after it was spun and probably when it was in the cone form. Boiling in a solution of soap and soda ash fails to remove the stain.

Further examination of the fabric indicates that the spots are a combination of lubricating oils and metallic particles that have become very much dried out and are almost in the form of dust. This had evidently vibrated off a shafting or bearing and has been spattered and blown into the fabric as the fabric has been knit. It does not occur on the inside of the fabric, but only on the outside rib portion.

We believe that the spots can be removed almost completely by the following treatment. Boil in a 3% solution of caustic soda for 2 hr. This will remove most of the oil, but will leave the metallic stain; next treat the goods in a hot (170° F.) 5% solution of hydrochloric acid to dissolve the metallic hydroxide formed by the caustic soda. Finally wash the goods well, adding a little ammonia to the last rinse water to neutralize any traces of acid. Fig. 1 shows the fabric with stain. Fig. 2 shows the fabric with stain removed by the treatment outlined above.

Face Marks on Silk Fabrics

Technical Editor:

I am inclosing herewith a sample of printed silk fabric. You will note that the dyed ground is faced. I understand that there is a treatment which removes these lines without changing the shade of the background. Will you kindly advise me what this preparation is and how it is used? (8336)

Facing is due to a discharge effect produced on the face of the goods outside

of the engraving, and is due to inefficient clearing of the roll by the doctor blade. Sometimes, even with a perfectly adjusted doctor, the hydrosulphite discharge paste is so strong that it adheres sufficiently to the un-engraved parts of the roll to cause a hazy effect all over the piece. The remedy is to pad the goods lightly with a solution of sodium meta-nitro-benzene-sulphonate. This compound can be obtained under various trade names from several of the dye companies. The padding is so adjusted that only the face of the goods is impregnated, and little or none of the solution is allowed to penetrate the fabric. The compound has an oxidizing action which is sufficiently strong to nullify the action of the hydrosulphite where it is present only in a slight amount, but is not strong enough to interfere with the discharge effect where the design is printed in the usual way.

Hosiery Is Sleazy

Technical Editor:

We are inclosing a stocking manufactured in our mill. We have been experiencing some trouble due to sleaziness, and shall appreciate your opinion regarding the cause of this trouble. If you will examine the stocking, you will find sleaziness in the body, but especially in the welt. Will you kindly advise us whether this is due to the silk, the soaking, or to some other reason. Our superintendent believes that it may be due to the fact that the silk, before being put on the machines, is not placed in the steam box. Please advise us if this is the general practice of the mills in the States. (8365)

Our examination shows that the stocking is poorly fabricated, due to mechanical defects. The machine is either badly worn or improperly adjusted. The stitch is not correctly formed. The machine is not dividing right. The fabric has a dead, inelastic feel across the wales and too much stretch lengthwise of the stocking. There are several noticeable sinker lines running the full length of the leg on each side near the inside corner of the tapered high heel. There are intervals in these lines where the stitch is not completely formed, resulting in a trick stitch. The fabric has the appearance of being knit on a head with a badly nicked verge plate or folding bar. There appears to be too much play in the sinkers, and the unbalanced character of the fabric indicates that the catch bar setting is not correct. Examination of the back seam shows that the machine is knitting an extremely poor selvage, which indicates that the machine is not properly adjusted.

There is no evidence that there is anything wrong with the silk or the soaking of the silk, and all the defects appear to be mechanical.

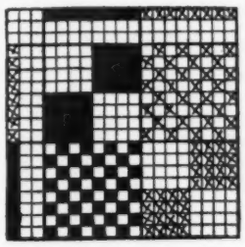
Silk is sometimes placed in a steam box to set the twist on high twist to prevent kinks in the silk when it delivers from the cone, but for conditioning silk to give it more moisture content a room or vault is equipped with air conditioning equipment, usually automatically controlled to give the desired temperature and humidity.

Dogtooth or Hound's-Tooth

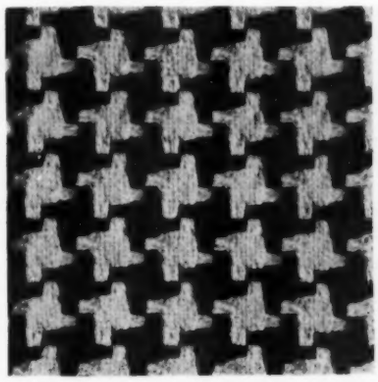
Technical Editor:

I have recently encountered a reference to a weave known as the "dog-tooth weave." Probably I should be familiar with this weave, but it so happens that I have never before heard of it. I wonder if you could inform me as to the nature of this weave? (8368)

The weave, which is more commonly known as the hound's-tooth weave, was illustrated by T. R. Hart on page 77, of the Feb. 14, 1934, issue of TEXTILE WORLD, Fig. 16. That illustration is reproduced herewith, together with a sample of fabric woven with the color pattern indicated. The color pattern, incidentally, is an essential element of the hound's-tooth effect.



Hound's-tooth weave



Fabric sample of above weave

Woolen Warp Weak

Technical Editor:

Recently we have been having trouble with some of our colors of yarn breaking off and running bad in the looms. They seem to be weak and lack sufficient strength. Inclosed are a couple of samples of these yarns (20 cut) to show you what we mean. We hardly know whether the trouble lies in the stock, mixing, carding, or what. Therefore we thought perhaps you might be able to give us some information on this. (8342)

The skeins of yarn submitted are apparently a standard 50-yd. reeling on a 1-yd. reel for the New Hampshire system of measuring. You state this should be 20-cut (6-typp) yarn, and therefore should weigh 58.3 grains. Actual count shows 51 turns instead of 50 in the skein, and careful weighing of the red shows 49 grains or approximately 16% light. The blue is 54 grains or over 7% light.

We believe the first step to take in order to obtain strength would be to bring these yarns up to weight. An average of five bobbins should not reel more than 2 grains above or below 58.3 for 20-cut yarn.

The fibers do not seem to be unduly weak, and we should say the dyeing is satisfactory. The stock mix indicates a high 3/8s blend, which should easily spin to 20-cut. As we have no sample of roping, we cannot judge the carding.

To spin this colored stock to 20-cut, we should use about 15% of oil and pick the stock at least twice in a mixing picker. Allow to condition over night if possible. The card weights should be about 78 grains per 50 yd., with a ¾ draft on the mule or 1.34 on the frame. The yarns seem a bit bunchy; and, if this is due to uneven roping, one tooth more on the mule speed gear or less tube speed on the frame may help to get more even yarn.

Hosiery Is Harsh

Technical Editor:

We are forwarding under separate cover three stockings made from 8-thread, 13/15-denier, pure silk, on 39-gage full-fashioned machines. These are a fair sample of the general condition of this batch, and we should like your opinion as to the cause of their harshness. This is a trouble which we strike periodically on most of our pure-silk lines. (8337)

It would be difficult to explain definitely the cause for the harsh finish appearing on these samples submitted without first being familiar with the circumstances leading up to the trouble. We are quite sure, however, that the trouble is purely a local one. The cause should be easily discovered and corrected by an experienced dyer, and a dyer of even limited experience should have no great trouble in locating and remedying the trouble by a strict application to the problem. It is our opinion that samples submitted were dyed by the so-called two-bath method—that is, degummed in one bath and dyed in another—and that the harsh finish was developed by too long treatment in one of the two baths, very likely in the dyeing bath. In other words, in the vernacular of the old-school dyer, the silk has been "cooked to death." This is purely a surmise without any attempt having been made to analyze the fabric or fibers.

There are a number of other causes for harshness in finish, chief among them being the chemical treatment of raw silk preparatory to knitting, such as the use of formaldehyde and similar chemicals for the prevention of mildew. It sometimes happens that the use of such chemicals in too great quantities has a hardening or setting effect on the silk gum or sericin, making it almost impossible to remove all the gum and produce a satisfactory silk finish. It also happens at times that gray goods are temporarily stored with sufficient dampness to produce slight mildew or mold, which also produces a situation difficult to handle so far as producing a satisfactory finish is concerned. Any faulty condition of the gray goods, should be noticed by the dyer before the dyeing process starts. When the gray goods are in a satisfactory condition at the time of entering the dyebath, and finally come through with a harsh finish as shown by sample submitted, it is self-evident that the trouble is produced in the dyeing operation, and the trouble can be easily isolated and corrected by careful procedure in the dyeing operation.

Silk Classifications

Technical Editor:

Why, in answering an inquiry on raw-silk classification in your July issue, page 95, did you elect to quote the standard adopted by the Japanese Government? As you know, the Commodity Exchange has a different one, the Raw Silk Committee of the National Association of Hosiery Manufacturers has another, and there is still in effect the June 12, 1929, classification of the Joint Committee. (8395)

The adherence of different groups to different standards of raw-silk classification presents a confusing picture, and we elected to quote the classification of most

THE OVERSEERS' CORNER

"S. T. A. Day" April 9 During Greenville Show

TEXTILE HALL officials recently decided that April 9, 1937, during the Southern Textile Exposition, Greenville, S. C., had been designated as "Southern Textile Association Day," according to D. H. Hill, Jr., secretary of the association. The meeting will be featured with a luncheon at the Poinsett Hotel.

recent adoption. The Joint Committee of the National Federation of Textiles and the Commodity Exchange, in cooperation with the hosiery committee and the Raw Silk Importers, are now at work on a revision of the 1929 classification, which—until such revision is completed—must still be considered official, although not in general use. That classification is published, as usual, in the 1936 edition of the "Textile World Yearbook."

Scouring Lime-Pulled Wool

Technical Editor:

We are scouring lime-pulled wool in a three-bowl, 48-in. Sargent machine. The first bowl contains soda and water at 115° F.; the second bowl contains soap, soda and water at 115°; the third bowl contains only water at 110°. We should like to know of some simple test to show whether or not the lime has all been removed. Would a small amount of lime be a handicap in the dyehouse later on? Also, can you suggest any better line-up of the washer as to soap, soda, etc.? (8362)

Pulled wool containing lime will not be freed of lime by the scouring process described. It is possible, however, that the wool may later be dyed without too great difficulty. If this wool should be blended with regular wool and subsequently dyed, the two wools will not take the dye to the same extent and two-tone effects will result. Lime in wool is always a source of concern to the dyer because of its variable reactions to dyes.

To eliminate the lime from the wool, there are three procedures in common use.

1. Dust the wool before scouring. This will remove a large percentage of the adhering particles of lime and will greatly help the scouring.

2. Use in the first and second scouring bowls either a sulphonated fatty alcohol or similar compound, or sodium hexametaphosphate.

Suggested schedule using three-bowl scouring train with sulphonated higher fatty alcohol: First bowl, 130° F.—usual alkali and 2 to 4 lb. sulphonated fatty alcohol per 1,000 gal.; add each hour the usual alkali and ¾ to ¾ lb. sulphonated fatty alcohol per 1,000 gal.; Second bowl—same as first bowl; Third bowl—rinse.

Suggested schedule using three-bowl scouring train with sodium hexametaphosphate: First bowl, 130° F.—usual alkali and about 5 lb. sodium hexametaphosphate per 1,000 gal.; add each hour the usual alkali and about 1 lb. sodium hexametaphosphate per 1,000 gal.; Second bowl, 130° F.—usual soap and alkali. About half as much sodium hexametaphosphate per 1,000 gal. as in first bowl. Third bowl, 110° F.—start with about 1 lb. sodium hexametaphosphate per 1,000 gal. and add ¾ lb. per 1,000 gal. every hour. The proportions will have to be adjusted to actual mill conditions. The amounts of lime, both in the stock and in the water, are factors which determine how much of the chemical is consumed. Use of a small amount of the chemical in the rinse bowl is beneficial, in that it assures a better removal of any residual lime soaps than does plain water. No harm is done to the stock if a little of the sodium hexametaphosphate goes through the dryer on the stock.

3. If stock dyed, treat in the dye kettle with sodium hexametaphosphate just before dyeing. If piece dyed, treat with this same material either with the soap during cloth scouring or in the dye kettle just prior to dyeing. About ½ lb. to 1 lb. per 100 lb. of goods should be ample in most cases. Since hard water contains lime, extra amounts must be used to compensate for that. About 1 oz. of sodium hexametaphosphate is ample to neutralize 1° of hardness.

A simple test for lime is to warm a bit of the dried or moist (not wet) wool in dilute pure hydrochloric acid (5 parts water to 1 part concentrated HCl, chemically pure). Decant some of the clear liquor into a test tube, add a small amount of ammonium oxalate solution, and heat to boiling. A white precipitate is an indication of lime.

Beaming Plush Warps

Technical Editor:

I have read with considerable interest the article entitled "Plush Warps," printed on page 100 of your June issue, and should like to inquire whether the machine described by the author is suitable only for use with looms running on the same construction. (8393)

This inquiry has been submitted to the author of the article in question, Ghent R. Robertshaw, who replies as follows:

"The machine I described is suitable for looms operating on the same count of yarn. If some looms call for 200 or 300 ends more than are in the section beams, extra ends can be run on the rebeaming machine with the section beams, and a better job made than with the ordinary method. To put a few hundred ends extra in the reed would take only a few minutes, and my method would be less expensive than the usual one.

"Suppose four section beams contained 1,200 ends and 4,800 yd. This gives the weaving beam 4,800 ends. If a loom calls for 5,000 ends, the extra 200 ends are run from a chain. Naturally, to avoid waste, it is necessary to secure chains of the exact length needed. Several splittings from one chain could be made on the splitting machine at one time to allow for different numbers of ends to be beamed, such as say 4,800, 5,000, 5,200, 5,400, etc."

Tiger Stripes in Knit Fabric

Technical Editor:

I am sending two cones of 36s, 2-ply yarn. No. 1 is unmercerized, No. 2 is mercerized. This yarn or warp is mercerized in a continuous machine. After the mercerization is complete and the yarn knitted into hose and dyed, the fabric seems to be very streaky, apparently the yarn resists the dye in places. I am also sending some of the knitted fabric, which clearly shows the results after dyeing. I have made a number of changes in the operation of the machine, trying to eliminate this condition; but, regardless of the changes, the same streaks or tiger stripes prevail. I shall appreciate any assistance you can offer me as to the cause of the trouble. (8343)

Tiger stripes, such as those evident in the knit goods accompanying your inquiry, may be due to irregular mercerizing or to materials getting onto the yarn after mercerizing, which would tend to resist dyeing. Fortunately we now have a very satisfactory way of determining whether or not mercerizing is to blame. Using the deconvolution count of Calvert and Clibbens (*Journal of the Textile Institute*, 24, T233, 1933) we obtained the following results:

Dark streaks = 68%
Light streaks = 47%

These figures give a satisfactory measure of the extent of mercerization of the yarn and show that there is a decided difference in the degree of mercerization in the streaks.

This difference in mercerization may be due to any one of the following causes, assuming that the yarn is warp mercerized:

1. Mixed lots of cotton; the better grades of cotton mercerize to a greater extent than the poorer grades.

2. Faulty boiling-out or wetting-out; if the impurities are not removed or the yarn properly wet out by the caustic, penetration is poor and mercerization incomplete.

3. Improper caustic treatment; unlikely because of the number of boxes used.

4. Poor mixing of the acid or local overheating by putting the strong acid directly into the box to mix with the water; the mixing should be done outside the machine.

5. Worn, grooved rolls, which would tend to alter the tension on the yarn and affect the mercerization.

In this particular case, we are inclined to believe that the uneven mercerizing is due either to faulty boiling or wetting out or to defective rolls. No data were given as to the operation of the mercerization machine, and, therefore, no definite suggestions can be made, as to changes in your procedure. Truing up of the rolls, modification of your boiling-out bath, and use of suitable penetrating agents are all logical steps to take.

Finishing Narrow Fabrics

Technical Editor:

I am inclosing two samples of narrow fabrics which I assume have been finished with starch. I shall appreciate your opinion as to the sizing materials used and the machines which are essential in order to get the proper finish. (8329)

In our opinion these fabrics have been filled and back-filled. The lighter fabric has been filled and only lightly back-filled, whereas the heavy fabric has been filled and very heavily back-filled. Probably this work was done on a starch mangle and stack of dry cans and finished on a calender.

Because of the small size of the sample, it is impossible to extract these filling agents from it in a sufficient amount to determine the formula used in each case. However, the lighter fabric was probably run through a solution composed of about 12 oz. to the gallon of starch, plus some such softener as coconut oil or sulphonated tallow and possibly a small amount of glycerin.

The back-filling on the other piece was probably about 1 lb. to the gallon of thick-boiling starch plus some inert loading mate-

rial, such as China clay or talc. This formula, too, has some softener in it to make the goods more or less flexible and to keep the starch and other filling agents from dusting out of the piece when the fabric is cut. Extra weight may have been obtained by adding salt—such as epsom salt, etc.—to the goods.

It is impossible for us to set up a practical working formula for you for this type of goods without knowing what particular machinery you have on hand. Again, when the machinery is properly installed it might require five or ten trial runs in order to develop the correct balance of starch, water, salt, softener, inert loading agents, etc. We cannot tell from the sample whether or not any British gum or dextrin was used in the formula. It may have been used, and probably would be a good product to use in place of some of the starch if the value of the fabric is such as to permit the extra cost for the British gum. British gum or dextrin will fill the goods in better when used in conjunction with starch than will starch alone.

S. T. A. Meetings

THE Northern North Carolina-Virginia Division of the Southern Textile Association met Oct. 3 at Greensboro, N. C.

The Carders' Division and the South Carolina Spinners Division held a joint meeting Oct. 10 at Spartanburg, S. C.

The Master Mechanics Division will meet Oct. 23 at the Franklin Hotel, Spartanburg, S. C.

The Eastern Carolina Division will meet Oct. 31 at Durham, N. C.

The Tennessee Division will meet Nov. 7 at Knoxville, Tenn.

Reports of the meetings held on Oct. 3, 10 and 23 will be published in the November issue of TEXTILE WORLD. Accounts of the others will appear in later issues.

Personal News

Nelson A. Butler, formerly a superintendent at the Amoskeag Mfg. Co., Manchester, N. H., has joined the Uxbridge Worsted Co., at its branch plant in Pascoag, R. I.

George S. Pickett, formerly of Keene, N. H., is now overseer of dyeing at Elm Mills, Tilton, N. H.

J. M. Blackman has been made overseer of dyeing at Mace Mfg. Co., Randleman, N. C.

A. R. Dillabar, formerly assistant superintendent of weaving at Amoskeag Mfg. Co., Manchester, N. H., has accepted a position with Berkshire Fine Spinning Associates, Fall River.

A. G. Fisher, Clemson textile graduate of 1933, has resigned his position with Union Bleachery, Greenville, S. C., to accept a position with Rock Hill (S.C.) Printing & Finishing Company.

George S. Pickett is now in charge of dyeing at Elm Mills, Tilton, N. H.

Paul Rohr has accepted a position with Arlington Mills, Lawrence, Mass., having formerly been finisher for the Forstmann Woolen Co., Passaic, N. J.

Merton Waterhouse, formerly with Cocheco Mills, East Rochester, N. Y., has succeeded **W. E. Rowland** as overseer of dyeing at Robinson Mfg. Co., Oxford, Maine.

John Ormstom succeeds F. Keefe as dyer at Sawyer Mill of American Woolen Co., Dover, N. H. Mr. Ormston was formerly connected with the Vassalboro (Me.) mills.

K. Slipp is the new second hand slasher at Nashua (N.H.) Mfg. Co., Nashua, N. H. He was formerly overseer of slashing in the Suffolk branch in Lowell.

Everett S. Peirce, of New Bedford, Mass., has obtained a position with U. S. Finishing Co. at its New Jersey plant. He was previously employed by Dutchess Bleachery, Wappinger Falls, N. Y.

Francis L. Torry, formerly with Hartford (Vt.) Woolen Mills, Hartford, is now overseer of finishing for Black Bear Woolen Mills, Proctorsville, Vt., succeeding **Frank E. Brazeal** in the job.

Oliver F. Lewis has been promoted from second hand to overseer of dyeing at Stanley Woolen Co., Uxbridge, Mass., succeeding **Max Smith.**

Frank Little, formerly with the Assawaga Co., Dayville, Conn., is now with Wood Worsted Mill of American Woolen Co., Lawrence, Mass., as a designer.

J. C. Lindsay is now in charge of dyeing at St. Paul (N.C.) Cotton Mills.

Ralph Davis has become night overseer of weaving at the Opelika (Ala.) Mills.

B. H. Lane has been placed in charge of finishing at Pacolet Knitting Co., Lynn, N. C.

Herman Selya has been appointed overseer of dyeing at Western Dyeing & Processing Co., Chicago, Ill., succeeding **H. H. Britt.**

Dennis Rainville has been appointed overseer of finishing for Millbrook Woolen Mills, Yantic, Conn.

James H. Rowan, formerly boss knitter and designer with Faith Mills, Averill Park, N. Y., is now boss knitter and designer for Myrtle Knitting Mills, Unionville, Conn.

Fred Riley has been promoted from overseer of dyeing to superintendent of Waterhead Mills, Lowell, Mass., to succeed the late Alfred Armstrong.

Ollie McGinnis has been promoted to succeed **Allan Cory** as overseer of dyeing for Dean & Sherk Co., Lawrenceburg, Ky.

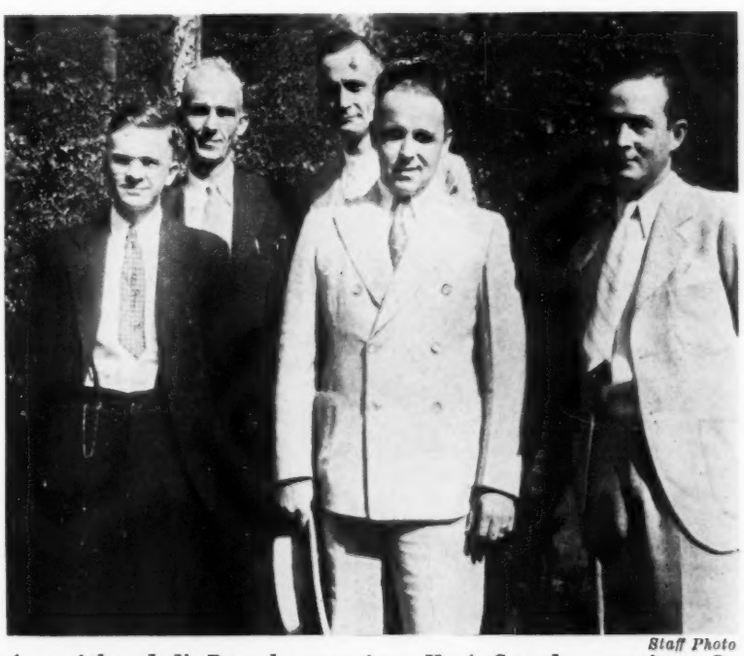
N. E. Goode, safety director of the American Enka Corp., Enka, N. C., has been appointed chairman of first aid for the Buncombe County, N. C., Chapter of the American Cross.

A. E. Bristow has been appointed overseer of carding and spinning at the Ida Mills, Laurinburg, N. C.

H. J. Spry, formerly with the Dover Mills, Shelby, N. C., is now designer for the Drayton Mills, Spartanburg, S. C.

M. M. Tuttle has been appointed

GROUP FROM MUSCOGEE MFG. CO. AT ATLANTA MEETING OF OPERATING EXECUTIVES



Staff Photo

Left to right: J. N. Rumph, supervisor; H. A. Crouch, supervisor; Oneal Walker, sample man; S. C. Schofield, dressing room overseer; H. C. Hodge, weave room overseer.

MORE PARTIES AND A BONUS

Ramshorn Mills, Inc., West Millbury, Mass., held an outing at Rocky Point, R. I., on Aug. 15. . . . Over 500 attended the annual outing of Hoosac Mills Corp., New Bedford, held at Acushnet, Mass., Sept. 5. . . . Ware (Mass.) Woolen Co. presented its 235 employees with checks for $30 each when the plant closed for 10 days' vacation on Aug. 20. Employees of Cocheco Mills, East Rochester, N. H., and Gonic (N. H.) Mfg. Co., owned by the same interests as Ware Woolen, were not closed, but employees were given bonuses of $15 each. . . . Overseers of Glenark Mills, Woonsocket, R. I., gathered at Scituate Harbor, Mass., on Aug. 29. . . . Eastern Connecticut Mills Association held its annual gathering at Moosup, Conn., on Sept 13. . . . The annual party of National Association of Dyers & Finishers was held at Hillsgrove, R. I., on Sept. 20.

superintendent of weaving at the Mooresville (N.C.) Cotton Mills.

G. W. Holt has become overseer of the carding division, John P. King Mfg. Co., Augusta, Ga.

W. L. Stevens, Covington, Ga., is now overseer weaving, Alabama Mills Co., Jasper, Ala.

A. S. Griffith has been promoted from overseer carding and spinning to superintendent of Alabama Mills Co., Jasper.

Homer Paromery has been promoted from fixer to overseer of night weaving, Alabama Mills Co., Jasper, Ala.

Ollie Hall has been promoted from second hand to overseer day weaving, Alabama Mills Co., Winfield, Ala.

L. A. Bryan is now overseer weaving Alabama Mills Co., Aliceville, Ala.

E. R. Erwin, overseer cloth room, Alabama Mills Co., Jasper, Ala., has resigned to take a similar position with J. W. Saunders Cotton Mill, Inc., Meridian, Miss.

W. H. Rhyne has been promoted from night to day overseer carding and spinning, Alabama Mills Co., Jasper, Ala.

Sam Cochrane has been promoted from mechanic's helper to master mechanic, Alabama Mills Co., Aliceville, Ala.

T. B. Barden, Cherry Mills, Florence, Ala., is now overseer night carding and spinning at Alabama Mills Co., Jasper, Ala.

Mrs. Ella Thrower has been made second hand, cloth room Mill No. 1, Chadwick-Hoskins Co., Charlotte, N. C.

M. C. Gantt, formerly of Eton Mills, Shelby, N. C., is now overseer cloth room No. 2 plant of Chadwick-Hoskins Co., Charlotte, N. C.

J. M. Banks is now overseer cloth room, Alabama Mills Co., Jasper, Ala.

Paul Snyder has been promoted from fixer to second hand night weaving Alabama Mills Co., Winfield, Ala.

Joe Alfred, Clanton, Ala., is now overseer weaving, Alabama Mills Co., Fayette, Ala.

H. S. Reed has been promoted from assistant to master mechanic, Alabama Mills Co., Winfield, Ala.

D. E. Brown, Montgomery, Ala., is now master mechanic, Alabama Mills Co., Fayette, Ala.

J. B. Shelton, formerly with Manetta Mills, N. C., is now overseer weaving, California Cotton Mills Co., Selma, Ala.

J. H. Druary is now master mechanic at Alabama Mills Co., Jasper, Ala.

C. B. Butler, formerly of Meritas Mills, Columbus, Ga., is now overseer weaving Alabama Mills Co., Clanton, Ala.

M. J. Bates, formerly of Lafayette, Ala., is now cloth room overseer, Alabama Mills Co., Clanton, Ala.

R. M. Robinson has been promoted to master mechanic, Alabama Mills Co., Clanton, Ala.

T. J. Davis, Jr., has been promoted from section to second hand at Dunson Mills, LaGrange, Ga.

I. J. Simmons has resigned as second hand of carding, Chadwick-Hoskins Co., Mill No. 5, Pineville, N. C.

Henry W. Bennett, formerly with Amoskeag Mfg. Co., is now with the finishing department of Pacific Mills, Lawrence, Mass.

D. E. Carter has been promoted from first shift section man to overseer spinning on second shift, Springs Cotton Mills, Fort Mill, S. C.

Roy McAllister has been promoted from loom fixer to assistant overseer weaving on first shift in the new weave room, Springs Cotton Mills, Fort Mill, S. C.

N. L. Padgett has been promoted from loom fixer to assistant overseer weaving on first shift in new weave room, Springs Cotton Mills, Fort Mill, S. C.

W. M. Weaver, Alta Vista, Va., is now second hand of weaving at Drayton Mills, Spartanburg, S. C.

J. E. Stone, formerly second hand of spinning at Drayton Mills, Spartanburg, S. C., is now assistant overseer spinning Aragon-Baldwin Cotton Mills, Inc., Whitmore, S. C.

Ben Swink, Alta Vista, Va., is overseer of slashing and drawing-in at Drayton Mills, Spartanburg, S. C.

Rex Hughes, formerly second hand at Dover Mills, Shelby, N. C., is now second hand of weaving at Drayton Mills, Spartanburg, S. C.

U. D. Snyder, formerly second hand of weaving at Judson Mills, Greenville, S. C., is now overseer weaving at Drayton Mills, Spartanburg, S. C.

C. R. Tinsley has been promoted from head loom fixer to second hand of weaving at Drayton Mills, Spartanburg, S. C.

L. H. Darnell has been promoted from loom fixer to second hand of weaving at Drayton Mills, Spartanburg, S. C.

J. H. Jolly has been promoted to overseer spinning, spooling and finishing at Bibb Mfg. Co., Macon, Ga.

J. S. Hardin, a graduate of the Textile School of North Carolina State College, class of 1935, who has been an overseer with the Du Pont Rayon Co. plant at Richmond, Va., has accepted a position in a rayon plant in Argentina.

B. H. Bloch, a recent Textile graduate of North Carolina State College, is now connected with the designing department of the E. M. Holt Plaid Mills, Burlington, N. C. He is a son of Max Bloch, of the Lamport Textile Co., New York.

Southern Weavers

Discuss weaving and slashing at Spartanburg

ONE of the largest crowds to turn out for a divisional meeting in a long time discussed weaving and slashing problems at the fall meeting of the Weavers Division of the Southern Textile Association held Sept. 19, at Spartanburg, S. C. Smith Crow, superintendent of Drayton Mills, Spartanburg, presided over the discussions as chairman. The group was welcomed by Mayor Ben Hill Brown, of Spartanburg. Honor guests included Fred L. Still, president of the Southern Textile Association.

Smith Crow, chairman, who presided at discussion

Weaving Discussion

Chairman Crow opened the weaving discussion by asking for causes of filling breaks at the transfer on several standard makes of looms. **Frank D. Lockman,** superintendent of Monarch Mills, Lockhart, S. C., reported that thick and thin places in the filling cause this trouble on his looms, and that it can be corrected in the spinning room. Mr. Riddle, overseer of weaving, Pacific Mills, Columbia, S. C., said that a thorough investigation showed that trouble of this nature in his mill is caused by improper shuttles, bad shuttle eyes, and incorrect power consumption. Chairman Crow remarked that he believes most of the difficulty originates in the department in which it occurs. D. D.

McAllister, overseer of weaving, Kenneth Cotton Mills, Walhalla, S. C., added that bobbins too long for the shuttle would cause breaks, and that there should be at least 1½ in. from end of quill to shuttle eye on 150-denier rayon, and possibly less for cotton. Mr. Riddle prefers ¾ in. distance from end of bobbin to shuttle eye, as ballooning occurs if the distance is greater. G. W. Yelton, weaver, Wallace Mfg. Co., Jonesville, S. C., suggested that filling is often broken at the transfer by the eccentric, loose crank arms, oversized quills, or improper rolling of the bobbin into the shuttle.

With reference to producing good cover on broadcloths, V. D. Snyder, weaver, Drayton Mills, Spartanburg, said that it is necessary to run the saddle roll high, whip roll high, top shed slack, and bottom shed tight. J. H. Franks, weaver, Republic Cotton Mills, Great Falls, S. C., suggested that special attention should be given to sizing broadcloth, as feel is very important in the finished goods. The reed should be from 2½ to 3 in. from the fell of the cloth, and filling should be soft twisted. Mr. McAllister said broadcloth should be reeded as fine as possible (two ends to the dent), leaving air space.

Shuttle life was reported as follows: Mr. Franks—about one year on Draper looms running two 8-hr. shifts; A. L. Burnett, assistant superintendent, Ware Shoals (S. C.) Mfg. Co.,—eighteen months (each new shuttle is punched with a die punch before going to the section man and after the old shuttle is returned); W. E. Hammond, superintendent, Balfour (N.C.) Mills,—a little more than six months at 192 picks making 80 squares; Mr. Riddle—eleven months running one 55-hr. shift with Model E looms at 160 picks (160 being average of entire mill, including new looms and some installed in 1905).

Relative humidity for the best results with high-count broadcloths and print cloths next came up for discussion. The majority preferred around 85% humidity for broadcloth, although several seemed to think 78 to 80% is sufficient. Mr. Burnet tries to maintain 85 to 90% with a temperature of 75° F. It was suggested that broadcloth should be sized heavier in the summer. Chairman Crow, before closing the humidity discussion, pointed out that humidity in the weave room is becoming more and more important and urged the men to keep close checks on this phase of weaving.

Mr. Hammond asked if any one had changed to longer bobbins (8 in.) and with what results. Mr. Bobo, Mr. Lockman, and Mr. Riddle said that they have changed to the longer bobbins and are getting good results.

Slashing Discussion

Percentage of stretch in 30s to 50s cotton yarn on the slasher was the first topic discussed in the slashing session. Mr. Lockman said that anything over 1½% is too much, and that less stretch

F. L. Still, president of S.T.A., who was guest of honor at Spartanburg meeting

is better. Mr. Jewell reported testing his slashers with counters at back and front and finding stretch to vary from 1.2 to 1.6%. Mr. Still keeps stretch on light constructions down to 1%.

Two members reported that they use a positive drive on slashers. O. E. Bishop, overseer of weaving, Gayle Mill, Springs Cotton Mills, Chester, S. C., said that he has tested for stretch both with and without positive drive and finds the results to be the same. J. Manning Bolt, general overseer of weaving, Brandon Corp., Greenville, S. C., removed positive drives from seven slashers because he could not keep his stretch within 1½%. He dislikes it on heavy sleys but thinks it might be useful on light sleys. Without the drive, his stretch averages 1%. In answer to a question, Mr. Bolt said that he is familiar with so-called free-wheeling devices on slashers and finds they keep down backlash and improve the positive drive. Chairman Crow said that Drayton has constructed a small single-cylinder slasher using a 5-ft. cylinder from a double slasher. Low-sley goods are run on this without excessive stretch.

Temperature in the size box, it was agreed, should range from 200 to 204° F. Insufficiently cooked or "green" size will cause yarn to stick to the reed in front of the slasher. Chairman Crow inquired as to whether it is better to size high-sley goods with a split lease, letting half the yarn go into a separate box, or with all the yarn going through two boxes in tandem. Opinion was about evenly divided as to which is the better practice. Mr. Franks, however, said that he has put a 660-lb. roller on the front of his slasher in an effort to get better penetration of size and finds that with this arrangement two size boxes are not necessary. The slasher is operated at 18 yd. per min. on heavy-sley goods.

With reference to rayon slashing, it was said by one member that 150-denier yarn should be run approximately 45 yd. per minute on a three-cylinder machine.

It was voted to appoint an executive committee to assist the chairman in planning future programs.

200 Operating Executives

Discuss weaving and Slashing at Georgia meeting

***SUBJECTS DISCUSSED** by the Textile Operating Executives included devices for reducing pressure on shuttles, high-pressure loom lubrication, stripping of quills, coverings for slasher squeeze rolls, preparation of size mixtures, and variable-speed drives for slashers.*

NEARLY 200 operating executives from Georgia and Alabama, and a number from South Carolina, discussed weaving and slashing problems at the fall meeting of the Textile Operating Executives of Georgia, held Sept. 19 at Atlanta. The meeting was presided over by J. C. Edwards, general chairman, who is superintendent of Martha Mills, Thomaston.

T. M. Forbes, secretary of the Cotton Manufacturers Association of Georgia, introduced the guest speaker, W. N. Banks, president of Grantville (Ga.) Mills and head of the Georgia manufacturers' association.

Urging the superintendents and overseers to help see that their mills observe code hours and wages in order to keep the industry from slipping back into the chaos it has attempted to pull out of in recent years, Mr. Banks pointed out that the industry lost $100,000,000 from 1926 to 1933. "We can help prevent a similar situation," he said, "by having friendly talks with our employees and explaining to them what unfair labor demands, high taxation, and unfriendly legislation would mean to the mills. Furthermore, each of us should see his State and National representatives and acquaint them with the facts."

Weaving Discussion

The weaving discussion was led by Allen Jones, superintendent of Muscogee Mfg. Co., Columbus, who began by asking for accounts of experiences with the various new devices for reducing pressure on shuttles. R. P. Sweeney, superintendent of Exposition Cotton Mills, Atlanta, reported that he has been experimenting with such de-

vices for the last six months and is so pleased with the results that the entire mill is to be equipped. Some 350 looms equipped with the apparatus showed considerable saving of shuttles, check straps, picker sticks, and other parts. Furthermore, the looms appear to run lighter, which means a power saving. R. A. Clayton said that a test installation in his mill showed a power saving of 10 to 11% over a period of six months, and that there was an appreciable saving in supply costs. Other members reported similar savings in power and supplies as a result of installing such attachments. There was only one discordant note, the complaint being that filling sloughs off to a greater extent. It was suggested that reducing the power would correct this.

With reference to high-pressure lubrication as compared with regular oiling of looms, the consensus was that high-pressure devices on new looms are much more efficient, as well as cleaner, than ordinary oiling, but that such systems are likely to meet with difficulty when installed on old looms with bearings cut for oil. A. D. Elliott, superintendent of the cotton mill operated by Trion (Ga.) Co., said that his high-pressure system eliminates oil splatter and shows some saving in replacement costs. Harry Purvis, superintendent of Chicopee (Ga.) Mfg. Co., pointed out that it takes longer for an oiler to go over a loom equipped with high-pressure lubrication, but he has to go over it only about one-fourth as often.

Rubber-covered sand rolls, the next topic brought up for discussion, were reported to cause excessive slipping of the cloth, particularly in the case of towels.

Proper timing of the cam and elimination of as much vibration as possible in the loom will tend to keep filling from rolling in the magazines, according to W. A. Brooks, superintendent of Mills Nos. 2, 3, and 5, Georgia-Kincaid Mills, Griffin.

Methods and cost of stripping quills came in for considerable comment. Mr. Sweeney said that an operator shall pull most of the yarn off by hand where coarse numbers are being run, the remainder coming off in a regular commercial stripper. C. K. Cobb, of Canton (Ga.) Cotton Mills, reported that over a period of eight months he stripped 12s by hand at a cost of 10c per 1,000. The lowest cost reported was 7c per 1,000 on 40s. The chairman mentioned that stripping quills is a good training ground for energetic young men who think they want to learn the mill business.

Paying weavers by the pick was said to have a number of advantages over other systems. It is fairer to the weaver, identifies the work done by each shift, simplifies pay-roll work, increases efficiency and production, and enables a study to be made of slow looms.

Slashing Discussion

Harry H. Purvis, superintendent of Chicopee Mfg. Co., presided over the slashing session.

The first question asked dealt with the primary covering for squeeze rolls. Several different fabrics reported as being in use included 8-oz. ticking, duck, and plain sheeting.

There was a difference of opinion as to whether or not slasher blankets should be taken off and washed when not in use. All agreed that the blanket should be wet thoroughly on Monday morning or after standing idle for any length of time. One member reported that he was getting only one week's wear out of denim but that, after changing to 8-oz. ticking, he gets three weeks on the same job.

Hard-size roller marks can be prevented, it was suggested, by careful temperature control. Boiling-up seems to be the cause of this condition, although stopping the slasher too long also has a tendency to produce hard size.

Softener should be added to the size mixture just before it comes to a boil in order to secure better penetration and to prevent coating of starch granules before they break down, was the general opinion. It was further pointed out that this practice will improve yarn strength and reduce lumps in size.

Foaming in the size box can usually be eliminated by keeping the mixture slightly on the acid side, it was suggested.

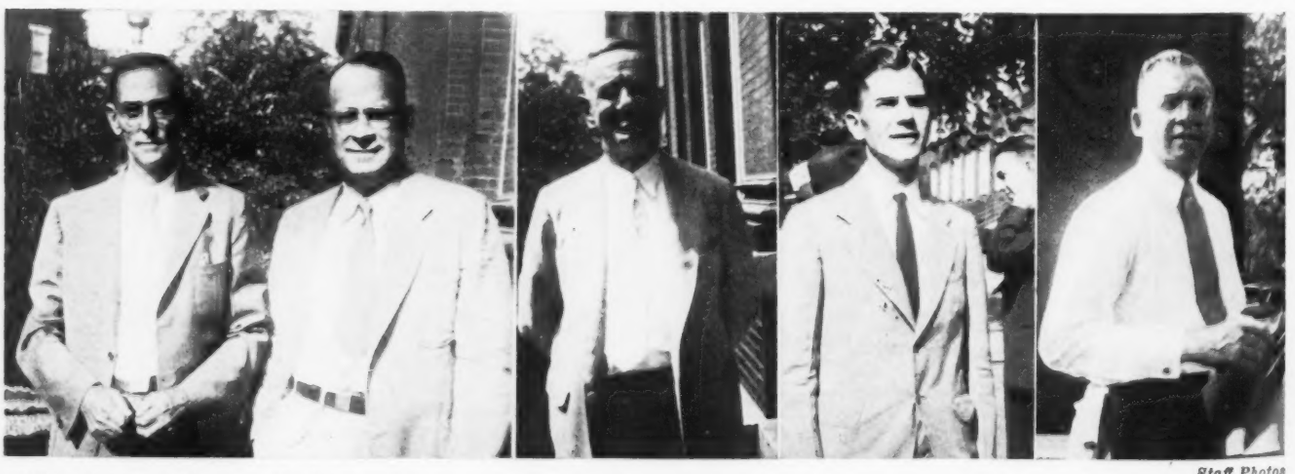
With reference to temperatures in storage kettles and size boxes, Mr. Sweeney prefers 193° F. in the storage kettle with open coils. Others seemed to think 200° F. in the storage kettle with closed coils better. In fact, the majority preferred open coils in the size box and closed in the storage kettle. It also was suggested in connection with this that revolving paddles and occasional cleanings will keep size from sticking to closed coils.

Size can be satisfactorily carried over night, it was unanimously agreed; but there was some doubt that it can be carried successfully over the week-end without controls. Some members get around the week-end problem by running out the mix on hand toward the end of the week and not making any more until the next week. Sediment is thrown away and the box cleaned.

A few Georgia mills were said to be using variable-speed drives on slashers with considerable success. Most of them, however, have not had installations long enough to make a very comprehensive report on the operation. Lanett (Ala.) Mill is using a variable-speed drive on slashers and likes it very much.

Positive drives on slashers were said to be helpful where light sets are being run, but are not necessary with heavy sets.

V. J. Thompson, of Griffin, Ga., was elected general chairman, succeeding Mr. Edwards, whose term expired with this meeting. A. D. Elliott, of Trion, was named vice-chairman, and R. L. Steele was added to the executive committee. The mill men were invited to visit the Georgia Tech. textile school immediately after the meeting.



Staff Photos

J. C. Edwards, retiring general chairman. *V. J. Thompson general chairman elect.* *Allen Jones, who led the weaving discussion.* *Harry Purvis, in charge of the slashing session.* *Ted Forbes, sec. of Cotton Mfrs. Assn. of Ga., giving out programs.*

NEW MACHINERY & PROCESSES

Koroseal Roll Covering

One of the newest applications for Koroseal, a synthetic rubber-like material recently developed in the laboratories of B. F. Goodrich Company, Akron, O., is that of a roll covering for spinning and roving frames. "Koroseal" is a coined word and refers to a variety of compounds ranging in hardness from an extremely soft and elastic material to one of bone hardness. Being thermoplastic, it lends itself to processing on standard rubber machinery.

The material in its uncompounded form is translucent and the natural color varies from pale amber to dark brown. It can safely be termed non-inflammable, as it will burn only when held in direct contact with flame. It is one of the most highly water-repellent, flexible materials known, does not swell in oil, and is a good electrical insulating material.

As long as temperatures are kept at reasonably low limits, Koroseal is reported to offer splendid resistance to abrasion. Sealing members on reciprocating pistons showed no leakage after 17,000,000 4-in. strokes. After continuous exposure to Akron weather for over two years, samples are still flexible and show no surface cracking or checking. Continuous exposure to ozone, ultra-violet light, and dry chlorine show no effect. In flexing tests duplicating the active service for which Koroseal and rubber units were designed, the rubber failed after 300,000 flexures, whereas Koroseal was taken out of test while still serviceable after 3,000,000 flexures. Elasticity of Koroseal may be varied over a wide range and measured in terms of its elongation. For textile roll coverings, Koroseal having a tensile strength of 2,200 lb. per square inch at 70° F. has been selected.

The first test installation of the roll coverings was made Dec. 26, 1935, on the cots of a spinning frame. These cots have been in use 120 hr. per week since that date, and recent examination showed their drafting surface to be as good as the day they were installed. Today Koroseal cots are running satisfactorily on a few test frames in many textile mills manufacturing different kinds of thread. Preliminary tests on spinning and roving frames, using Koroseal cots, are reported to have shown equal or greater tensile strength in the finished yarn, superiority regarding resistance to wear or grooving, little or no lick-up of fibers, no chemical deterioration on standing, and ease of assembly or installation on arbors. Grinding and preparation of the surface of Koroseal cots is simple and requires very little equipment.

Protected Welding Machine

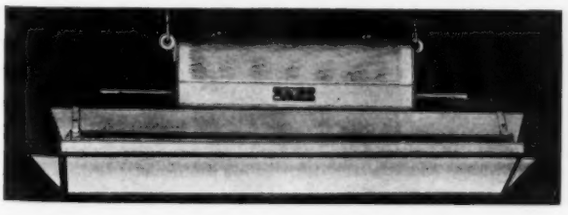
A new, motor-driven, single-operator-type arc welder for general fabrication and repair work is being marketed by Lincoln Electric Co., Cleveland, Ohio. The machine, known as the SA-150, is designed for a wide variety of applications, and it is stated that this feature is further enhanced by the fact that, at the proper points, it is insulated with Class B insulation and has no flammable materials. The insulation is thus insured against burn-outs, permitting sustained overloads without injurious effect.

The SA-150 is powered by a Linc-Weld 7½-hp., ar-c. motor, and is available for 60-cycle power circuits of 220 or 440 volts, 3 or 2 phase.

Combination Lighting Unit

General Electric Vapor Lamp Co., Hoboken, N. J., has introduced a combination lighting unit which has a number of improvements designed to utilize more effectively the principle of combining mercury-vapor light and incandescent light, so that the blue-green effect characteristic of the former is balanced by the reds and yellows of the latter. The mercury-vapor light source is a straight, 33-in., Copper-Hewitt tube, 1 in. in diameter, mounted horizontally beneath a reflector of Alzac aluminum. The incandescent light sources are four 150-watt Mazda lamps, located diagonally in a horizontal plane above the mercury tube.

A feature of the new lamp from the sight-saving standpoint is its large light-source area and low intrinsic brightness. A total output of 11,200 lumens is evenly distributed through the 650 sq. in. of diffusing glass to minimize glare.



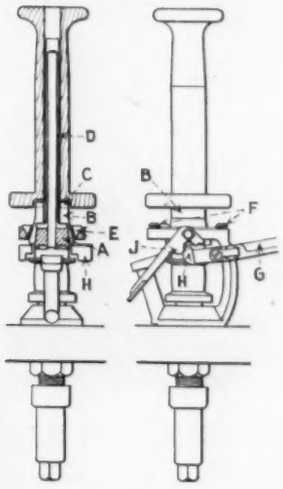
Hosiery Inspection Forms

A new hosiery inspection form which is designed to reduce maintenance costs and facilitate inspection, and which has a permanent surface has been announced by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Made of Micarta, the form is a gloss black moulded form with steel reinforcing and complete with flange ready to bolt to an inspection stand. Developed with the aid of hosiery mill specialists, these forms have been in continuous service on one mill over two years. They have withstood the abrasive action of the gum silk, showing practically no wear and retaining the same black glossy surface as when installed.

The principal advantages of Micarta inspection forms are summarized by the manufacturer as follows: (1) permanent gloss-black and smooth throughout; (2) use of Micarta material eliminates painting and enameling of forms; (3) eliminates defects and poor inspection resulting from cracked or worn enamel on edges of inspection forms; (4) surface shows practically no wear and remains permanently smooth with service; (5) uniform in condition and color at all times; (6) designed to fit all sizes and lengths of hose; (7) hose can be pulled on this form and stretched easily due to extreme smoothness; (8) a uniform board pull at all times; and (9) no maintenance of Micarta forms is required; they will last indefinitely.

Twin-Clutch Spindle for Stop-Motion Ring Twisters

A twin-clutch spindle, for use on stop-motion ring-twisting frames, has been developed recently by Prince-Smith & Stells, Ltd., Keighley, England, and is now being marketed in this country by Atkinson, Haserick & Co., 152 Congress St., Boston. Two of the important advantages are that the tape-and-tension drive can be applied to all stop-motion frames—e. g., universal, combination, and fancy-yarn types—and that the whorl continues to run no matter whether the bobbin is running or stopped. Use of the tape-and-tension drive decreases power consumption as compared with the band drive, while the continuously running whorl prevents braking action on neighboring spindles driven by the same tape, thus making for more even twist and less wear on the tape.



As shown in the diagram, the upper portion of the driving whorl is made cone-shaped at *A* to receive driven *B*, which transfers motion to the bobbin through pegs *C*. The driver is fixed to the brass tube *D*, which has an easy fit over the spindle blade and is suitable for the bore of the bobbin. An external cone on *B* is arranged to form contact with stop-ring *E*, which is fixed to an extended portion of the bolster casting by screws *F*. Lever *G* causes the driving and stop clutches to operate.

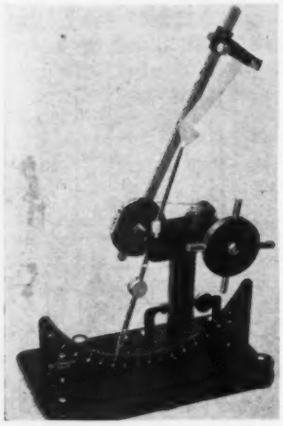
In the running position, the weight of the bobbin and driver insures a driving contact between the cones of *A* and *B*, and no stationary object is in contact with any running part. When the trapper operates, the lever *G* falls, causing fork *H* to lift *B* from contact with *A* and forcing it against *E* to stop rotation. When it is occasionally desired to run only part of the frame, the catch *J* can be lifted to hold *G* in the running position.

Steam-Return System

The Adsco-Becker condensate and steam-return system is being manufactured and sold east of the Mississippi by American District Steam Co., North Tonawanda, N. Y., and in the western territory by Becker Pump Co., Oakland, Cal. The equipment is in one piece with one moving part, and it is stated that steam and condensate are returned to the boiler at high temperatures. In drying, cooking, and heating, production increases of 15 to 40 per cent and fuel savings of 15 to 25 per cent are reported. Other advantages listed include: hotwells, feed pumps, and injectors are eliminated; heat loss is reduced to a minimum; less make-up water is required; and boiler scale is reduced.

Stiffness Tester

Stiffness, softness, pliability, and hand of a wide range of fabrics from voiles to denims can be measured by the stiffness tester placed on the market by W. & L. E. Gurley, Troy, N. Y. The instrument provides a definite measurement that can be recorded for duplication at some future time to simplify the matching of previous orders, and shows the



effect produced by starching, sizing, weighting, tightness of weave, etc.

The tester consists of a balanced pointer, which can be loaded with weights of various values, placed in various positions below the center. A sample of material is cut to standard size, clamped in a movable arm, and drawn over the top of the pointer until the bending of the sample releases the pointer. The amount the pointer is deflected, read on a scale at the bottom end, is the measure of stiffness. Jewel bearings are provided for the pointer. The readings may be converted to milligrams of bending resistance, if desired, the minimum reading being about 10 mg. and the maximum over 100,000 mg.

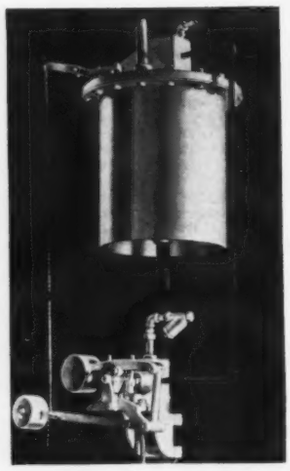
Cleaning System

Automatic cleaning of lint from textile machinery is the objective of a new system developed by American MonoRail Co., Cleveland, Ohio. Carriers are suspended from MonoRail track which passes over the machines to be cleaned. To propel the blower unit, a MonoTractor with ⅛-hp. motor is used, and traction is obtained by contact of a rubber tire with the bottom of the rail. Standard conductors of bus bar are attached to the rail hangers, and contact with them is made by gunmetal collector shoes incased in Bakelite. The carrier wheels are mounted on ball bearings.

Connected directly with the MonoTractor, by means of a pipe of any required length, is a blower, driven by a self-cleaning, squirrel-cage motor. The housing for the impeller is so arranged that the air enters from the side, over the creel but low enough to prevent condensation of moisture on the rings as the unit passes under the humidifiers. Crescent-shaped vents furnish the air output as the unit travels over the creels, and the top of the creel is cleaned by a smaller volume of air from the tube vents. The air intake is provided with shutters, so that the volume of air can be controlled to prevent damage to roving. It is impossible for the carrier to leave the rail, and speeds as high as 200 ft. per min. make it possible to clean many machines at short intervals.

Direct-Pressure Boiler Feeder

Addition of the Morehead Midget direct-pressure boiler feeder to its line is announced by Morehead Mfg. Co., Detroit, Mich. The unit brings to boilers up to 10 hp. the advantages of return-trap practice. The tank is independent of the valve mechanism and can be placed in a normal operating position above the boiler, while the controlling device remains within easy reach. The Midget handles both condensation and make-up water. It



is said to reduce strains due to expansion and contraction; help maintain constant steam pressure; eliminate danger of low water; and give savings in steam, water, and fuel. Once installed, the unit is automatic and requires no further attention.

Fire-Fighting Tool

A mechanical, rather than a chemical, means of making foam for fighting flammable-liquid fires, suitable for use with long or short lines of ¾- to 2½-in. hose, has been announced by Pyrene Mfg. Co., Newark, N. J. A water stream is converted into a continuous foam stream by coupling a nozzle, known as the Phomaire play pipe, to a water line supplying 75 lb. or more pressure at the play pipe. As the water passes through the play pipe, Phomaide—a new foam-making solution carried by the operator in a hip pack—and air are automatically drawn into the water stream in the proper proportions to form foam.

Water may be pumped from suction, hydrant, or water pump, and only about 20 gal. per min. is required. A water stream for extinguishing any lingering fire in ordinary combustibles can be discharged by lifting the pick-up tube out of the solution.

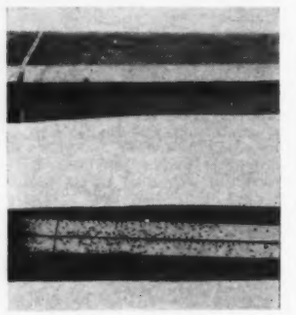
Indicating Controllers

For processes where close throttling control is needed, but a record is not essential, Taylor Instrument Cos., Rochester, N. Y., have put on the market an adaptable, air-operated controller of the indicating type. Features are as follows: either high-range sensitivity for processes having small time lags, or full-range sensitivity for time lags of any magnitude can be secured; the control point may be adjusted to any value within the control range; controller action may be quickly reversed in the field by altering the position of a link; control ranges to choose from between minus 100 and plus 1,000° F., or full vacuum and 3,000 lb. pressure; controllers may be equipped with mercury-, vapor-, or gas-actuated tube systems.

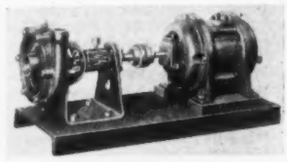
Preservative Coating

Coppercote, produced by American Coppercote, Inc., 480 Lexington Ave., New York, is a coating of metallic copper, of the irregular flaky structure known as dendritic, that can be applied to iron, steel, wood, concrete, or other surfaces requiring protection against corrosion. A special vehicle is employed in which minute flakes of copper remain in suspension. When Coppercote is applied, a turbulent action takes place which causes it to spread automatically and to work itself into the pores of the coated surface. The result is said to be a sealed metallic surface, permanently impenetrable by either air or moisture, that will not crack, scale, or chip.

Protection of steel columns under damp conditions and of wood pilings are among the numerous uses. Concrete floors and brick walls can be quickly waterproofed by treatment with Coppercote.



TOP: One coat red coppercote and one of green coppercote. Condition after exposure, perfect.
BOTTOM: Treated with wood preservative. After exposure riddled and partially destroyed.



Small Centrifugal Pumps

Small, low-cost centrifugal pumps, utilizing a pressed-steel frame, are announced by Worthington Pump & Machinery Corp., Harrison, N. J. Simplicity of design and lower maintenance cost are featured. The pumps are furnished with direct-motor drives, or with pulleys for belt drive. The motor sizes range from ½ to 3 hp., delivering from 10 to 130 gal. per min., with heads of from 10 to 100 ft.

The shaft of the pump is supported by two ball bearings inclosed in a dirt-proof and moisture-proof housing, and the suction head is easily removable for inspection. A choice of standard, all-iron, and all-bronze fittings is offered.

New Publications

Custom House Guide, 1936 Edition; Box 7, Station P, Custom House, New York; $10.00.

The publishers state that the 1936 edition is in effect practically a new tariff edition since approximately 60,000 changes have been made in the volume since the 1935 edition. One-third of the imports and one-quarter of the exports of the United States are affected by the nine reciprocal trade agreements entered into between the United States and foreign countries; for which the rates of duty on over 482 commodities have been included in this new edition. The new rate of duty appears opposite each article affected. The nine trade agreements are also published in detail.

Handbook of the Soviet Union; American-Russian Chamber of Commerce; New York.

This volume is the successor, considerably enlarged and made more comprehensive, of the

"Economic Handbook of the Soviet Union" issued in 1931. Manufacturers of both textiles and textile machinery and materials will find much of interest and value in its pages. An important chapter of the book from the textile equipment viewpoint is that devoted to "Industry" which discusses the second five-year plan of machine building. This chapter states that the output of textile machinery will be increased 600%. For example the production of looms will rise from 444 in 1932 to 32,000 during the 1932-37 period.

Official American Textile Directory; Textile World Publications, McGraw-Hill Publishing Co., New York; 616 pp.; $4.00.

The 1936 edition of the "Official American Textile Directory" is available. Numerous changes and improvements have been incorporated into this year's volume including not only the usual thorough revision of the mill section, but a complete change of format, and the inclusion of more than 100 pages of additional information.

The Mill section lists geographically (by states and towns) the textile mills of the United States and Canada with such information for each as names of officers and operating officials, equipment, products and sales outlets. Classification of mills by branches of industry is clearly indicated by key letters in upper right hand corner of each entry. This material has been brought completely up-to-date, and the new tabular arrangement makes access to important mill data much simpler and quicker.

The Yarn Buyers Guide and Processing Sections have been enlarged and subdivided for greater usefulness. These sections include a listing of spinners, classified by types, sizes and put-ups; a geographical arrangement of yarn dealers, agents and direct mill sales offices; a list of dyers, bleachers, printers and finishers, classified by process; and a listing of commission spinners, winders, weavers, etc.

There is also the usual alphabetical list of mills by company or mill name.

The size and weight of this new edition adapts it equally well to easy use in the office or the field.

Business News

Collins Loom Works, Inc., Amsterdam, N. Y., elected Raymond C. Collins as vice-president and general manager.

American Cyanamid & Chemical Corp., New York, will double its plant at Charlotte, N. C., and will open an extra warehouse at Chattanooga, Tenn.

John P. Maguire & Co., factors, New York, are now in the new offices fitted out for them on the ground floor of the New York Life Insurance Co. Bldg. at the northwest corner of Twenty-sixth Street and Fourth Avenue. The offices are equipped with every modern device for the prompt handling of the company's business and for the comfort and convenience of its employees.

David Speizman, Inc., Ashley, Pa. and Charlotte, N. C., announces the establishment of a branch warehouse at 120 South Poplar Street, Charlotte, N. C. A complete line of used machinery and mill supplies for the general textile trade will be carried at all times. Mr. Morris Speizman is in charge of the Southern branch.

Universal Winding Co., Boston, was awarded a favorable decision on Oct. 1 in its suit in the U. S. District Court, Boston, against Foster Machine Co., Westfield, Mass., for infringement of Universal's Reece patent 1,749,355, on the grooved guide roll for rotary traverse. In effect, the defendant's McKean patent 1,918,210 was thereby declared invalid. The validity of Universal's Swanson and Marcroft patent 1,946,506, however, covering the ribbon breaker, which although only incidental to the rotary traverse was involved in the suit, was not sustained. Foster Machine Co. is contemplating an appeal.

Carolina Aniline & Extract Co., Charlotte, N. C., has completed erection of an all-steel and asbestos plant, laboratories and offices. This plant, built especially for the manufacture of all types of sulphonated oils, titanium products, and various types of finishing compounds, is said to be the first building of this construction ever put up in the U. S. Asbestos was used throughout because of its flexibility, heat and cold insulation, and protection from fire hazards. It was constructed on the Ambler Olsen system and designed especially for sulphonating in summer temperatures of the South.

Chas. H. Stone, Inc., Charlotte, N. C., chemical manufacturer and distributor, has opened a warehouse at Greenville, S. C., because of increasing business in the upper South Carolina area. The company recently completed installation of a new 125 hp. boiler at its Charlotte plant.

Geigy Co., chemical and dyestuff manufacturers, has leased a building on Eleventh St. in Charlotte, N. C., where the offices will be moved from their present location. Bernard F. Smith and Fred E. Sprock are in charge.

Industrial Colloids Chemicals, Inc., has leased the No. 2 plant of Knoxville (Tenn.) Knitting Mills Co. for two years. The new company will install machinery and engage in the manufacture of a machine and a cement to eliminate the tying of knots in the yarns of knitted and woven textile products, etc. M. F. Nichols, C. N. Mynderse, C. M. Ells and Robert Cowan form the new company.

Robert Schmeidler, M.A., F.A.I.C., has joined the staff of Kenney-Herstein, Inc., consulting chemists, 18 East 41st St., New York City, as an associate. Mr. Schmeidler had been for the last 11 years with the United Piece Dye Works as chemist in charge of the production and utilization of textile chemicals.

American Machine & Metals, Inc., has opened an office in the Washington Building, 15th St. and New York Ave., N. W., Washington, D. C. Joseph S. Jones, one of the vice-presidents, will be in charge. All of the products of the various divisions of the company will be handled by the Washington office, among which are included Troy laundry machinery and Tolhurst centrifugals.

Electro Bleaching Gas Co. and its affiliate, **Niagara Alkali Co.**, are now in new and more spacious quarters on the 30th floor of the Lincoln Building, 60 East 42nd Street, New York, N. Y. Increased business, resulting in the need for larger and better office facilities, are responsible for this move. Both EBG and Niagara are known for pioneering activities in their respective fields, the former in production of liquid chlorine, and the latter in caustic potash and carbonate of potash.

Coordination Conference Plans

Included in the agenda for the Coordination Conference to be held under the auspices of the Cotton-Textile Institute in the Hotel Biltmore, New York, Oct. 27, are five major subjects for discussion: Maintenance of hour and wage standards; legislative activities; public relations; promotion of cottons; and relation of cotton textile associations to the associational activities of other textile groups, such as rayon weaving, silk, woolen and worsted. In attendance at the meeting will be representatives of a large number of associations identified with the cotton industry.

Lectures on Color and Design

The Metropolitan Museum of Art, New York, announces several series of lectures and gallery talks covering the subject of color and design, their principles and applications. The season began Sept. 27. The courses are free. On Sundays at 3 p.m. will be a series on color and design; Tuesdays at 11 a.m., a series on design in the decorative arts; and Tuesdays at 3 p.m., a series on color. A detailed program can be secured from Richard F. Bach at the Museum.

More Bullish News

Last month saw tangible evidence of improved business in New England in the form of wage advances of 5% at Pepperell and Berkshire in Fall River with others expected to follow (Berkshire workers struck for greater increase), and resumption of dividends by Nonquitt and Kilburn in New Bedford for the first time since 1930. Workers at Ware Woolen Co. received bonus of $30 each and Cocheco Woolen and Gonic gave employees $15 each. Another encouraging note is the fact that Nashawena directors called a stockholders' meeting for Oct. 11 to consider re-opening plans. From the South also comes news of wage advances; both West Point Mfg. Co. and Samoset Textile Mills have effected 5% increases. The mills named are merely among the early participants in what is expected to be a more general movement.

Hope to Operate Parts of Amoskeag by Winter

Subsequent to approval on Sept. 15 of the sale of Amoskeag Mfg. Co. to Amoskeag Industries Inc., Arthur E. Moreau, president of the latter concern, stated that he hoped several units of the plant would be sold and placed in operation by early winter. Meanwhile Amoskeag's financial affairs had a thorough going over at the hearings of the Sabath congressional committee which started in Manchester Oct. 1.

Brazilian Textile Industry Expands

The expansion of Brazil's domestic textile industry in the last ten years has been reflected in a sharp decline of imports of cotton manufactures into that market. Imports of cotton pieces goods into Brazil declined from a total value of $19,000,000 in 1926 to only $1,200,000 in 1935, of which totals United States products accounted for $940,000 and $43,000, respectively. Brazilian imports of cotton yarn in 1926 were valued at $3,288,000, a total which declined to $2,130,000 in 1935. Purchases of this item from the United States declined from $762,000 in 1926 to only $1,400 last year. There is little likelihood, according to the commercial attache at Rio de Janeiro, that the United States will be able to recover the volume of trade in cotton textiles it formerly held, as the domestic industry, protected to a greater extent than ever before, can meet any competition in manufactured products which might be offered by American producers.

Research Institute's Annual Meeting

The seventh annual meeting and dinner of U. S. Institute for Textile Research, Inc., will be held at the Waldorf Astoria Hotel, Thursday, Nov. 5. The formal meeting of the corporation for presentation of reports and election of directors will be held at 11 a.m.; a conference sponsored by the Research Council will start at 2 p.m., and the annual dinner at 7 p.m.

Freedman Asks Testing Houses to Grade Goods

Commercial testing laboratories should do more than report the results of tests—they should declare whether the material tested is satisfactory or unsatisfactory—declared Ephraim Freedman, director of Macy's Bureau of Standards, in an address before the American Association of Textile Technologists, at the Hotel Wolcott, New York, Sept. 15. Of course, to make this possible, he pointed out, adequate standards would have to be established through cooperative effort. Consumer standards, he believes, should be expressed in simple language; and goods should be graded A, B, C—or in some other, equally simple manner—by the laboratory itself.

THE PERSONAL PAGE

John E. Rousmaniere, president of Cabot Mfg. Co., Brunswick, Me., has been elected a director of American Woolen Co., to fill the vacancy caused by the resignation of **Charles Hayden,** of Hayden, Stone & Co.

George Q. Murphy, Asheville, N. C., for several years superintendent of the Asheville Cotton Mills, has been elected treasurer of the company succeeding the late **M. D. Long.** In addition to his new position, Mr. Murphy will also continue as superintendent.

R. H. More, for the last seventeen years general manager of Susquehanna Silk Mills, has been elected vice-president of the company.

K. E. Thierfelder, vice-president in charge of production at Se-Ling Hosiery Mills, Nashville, Tenn., for the last four years, and prior to that time superintendent of Holeproof Hosiery Co., Milwaukee, Wis., has resigned, effective Oct. 1. **J. H. Callicott,** who has been with the mills since 1929, succeeds him.

Raymond S. Bartlett, at one time vice-president and general manager of American Woolen Co., and more recently with Peerless Woolen Mills, Rossville, Ga., has joined Botany Worsted Mills, Passaic, N. J., in the capacity of superintendent.

Warren D. Brewster has been appointed treasurer and a director of Deering Milliken & Co., New York, succeeding the late Henry Maxwell, Mr. Brewster came with the company in 1924. He is the son of Samuel D. Brewster, who was for many years a partner in the firm and who died in 1920.

R. N. Sewell, associated with the Columbus, Ga., unit of Bibb Mfg. Co., has been promoted to the sales department at the New York office.

Henry J. Herbst, for many years secretary-treasurer of the General Hosiery Co., Fort Wayne, Ind., has been elected president to succeed **Charles M. Neitzer,** resigned. **Ottomer Steigler,** plant superintendent, has been elected vice-president; and **Wayne Thieme,** secretary-treasurer.

William W. Steffen, formerly of Steffen-Tilliard, designers, New York, has joined the silk studio of Robert Schey, New York. **Gilbert Tilliard** will continue his firm.

A. C. Wood, general superintendent, has been promoted to the post of assistant to President **B. B. Gossett** of the Gossett Mills at Anderson, S. C., the Chadwick-Hoskins Mills and the Martinsville (Va.) Cotton Mills, Mr. Gossett has announced. **G. G. Cromer,** assistant treasurer of the Chadwick-Hoskins Co., has assumed charge of manufacturing in the Charlotte and Martinsville plants, working under Mr. Wood. He will be assisted by **James P. Gossett, 2nd,** who has been with the company for several years. **L. F. Lemore,** former superintendent of the Davidson (N. C.) Cotton Mills, becomes superintendent of the No. 1 and No. 2 plants at Anderson, and **J. A. Fewell,** until recently with the Dunean Mills, Greenville, S. C., has been named superintendent of the Chadwick-Hoskins plants No. 1 and No. 2 at Charlotte, N. C.

G. G. Simmons, formerly superintendent of National Weaving Co., Lowell, N. C., has been appointed assistant to **Smith Crowe,** superintendent of **Drayton Mills,** Spartanburg, S. C.

J. L. Rhinehardt has been promoted from overseer of carding and spinning at Mansfield Mills, Inc., Lumberton, N. C., to superintendent of Jennings Mill, of the same town.

Dr. A. R. Macormac, formerly professor of textile chemistry and dyeing at Clemson College is now head of the textile chemistry department at Auburn (Ala.) Polytechnic Institute.

Charles G. Squibb, in charge of merchandising for Nashua (N.H.) Mfg. Co., for several years, has resigned.

Henry E. Rauch, for the last eight years agent of Amoskeag Mfg. Co., Manchester, N. H., severed his connections with the corporation on Sept. 1. His plans for the future are uncertain. He succeeded **Col. W. Parker Straw** in 1928.

Walter T. Jenkins has been made general manager of Rock Hill (S.C.) Printing & Finishing Co., succeeding **Archie O. Joslin,** who becomes treasurer of M. Lowenstein Sons Co., New York. Mr. Joslin, who has been general manager and treasurer of the Rock Hill plant, which is owned by M. Lowenstein Sons Co., for the last seven years, retains his post as treasurer of the printing plant.

A. L. Shuford, president of the Conover (N.C.) Knitting Mills, was recently elected president of the Farmers & Merchants Bank, Newton, N. C.

Charles S. Johnson, former production manager of Assabet Mills of American Woolen Co., Maynard, Mass., has been made assistant resident manager of Wood Worsted Mill of the company, Lawrence.

M. J. Anita, professor of economics at Sydenham College, Bombay, India, is touring North and South Carolina and other cotton-producing areas to study manufacturing methods, production and marketing. He told newspapermen that in his opinion nothing currently indicates American cotton will lose its dominating place in world markets.

Roy N. Lotspeich, and **Robert R. Spillman,** president and secretary, respectively of the Appalachian Mills Co., Knoxville, Tenn., who were among a group of Knoxville business men who recently purchased the the *Knoxville Journal,* at the organization meeting of the new owners, were elected president and vice-president, respectively, of the Journal Publishing Co.

W. H. Tedford, overseer spinning of Kendall Co., Paw Creek, N. C., has been made assistant manager of the Mollohon plant, Newberry, S. C.

R. B. Lewis has been made sales manager of Standard-Coosa-Thatcher Co. and will make headquarters in Philadelphia.

M. R. Cranford, Clemson textile graduate of 1933, has resigned as instructor in textiles at Clemson to become connected with Muscogee Mfg. Co., Columbus, Ga.

W. J. Carter, who recently resigned at vice-president of Burlington (N.C.) Mills, has been elected a vice-president of S. Slater & Sons, Inc. He will divide his time between the New York offices of the company and the southern plant.

Bernardo Cock, superintendent of Tejidos El Condor, S. A., a cotton mill at Medallin, Colombia, has just completed a five-week study of mill organizations in this country.

J. J. Reutlinger, of Hatch & Reutlinger, New York, has returned from a tour of European textile centers.

J. H. Middlemiss is now superintendent of the Beaunit Weaving Mills, Cohoes, N. Y.

B. F. Littman has been appointed superintendent of the newly organized Hoosick Falls (N. Y.) Undergarment Co.

H. R. Vandenbree has resigned as superintendent of J. J. Dunlop & Son, Inc., Massena, N. Y.

George Walker, formerly trustee and secretary of the board of New Bedford (Mass.) Textile School, has been appointed principal to succeed **Joseph H. Hanford.**

Paul B. Welles, formerly with Parker, Wilder & Co., has been appointed general sales manager for Pequot Mills, Salem, Mass. Other members of the new selling force are **Ernest Keeper, Campbell B. Carmichel, Thomas B. Ballantyne, Ernest H. Lindsay,** Robert **J. Roberts, Carl Badger, Joseph I. Hartman, and Stuart S. Littlefield.**

Ferdinand Schulze and **Fenton Sweezey,** of the technological department, and **Robert H. Osterloch,** of the engineering division of the Dupont Rayon Co., Waynesboro, Va., sailed recently for Europe, where they will study rayon manufacturing processes in France, Italy and Germany.

F. C. Benoit, formerly of Louisville,

Textile Calendar

Committee D-13, A.S.T.M., fall meeting, New York, Oct. 14 to 16, 1936.

Master Mechanics Division, S.T.A., Spartanburg, S. C., Oct. 23, 1936.

Coordination meeting of cotton textile industry, New York, Oct. 27, 1936.

Tenth annual meeting, Cotton-Textile Institute, New York, Oct. 28, 1936.

Carolina Yarn Association, fall meeting and golf tournament, Carolina Inn, Pinehurst, N. C., Oct. 29 and 30, 1936.

Eastern Carolina Division, S.T.A., Durham, N. C., Oct 31, 1936.

U. S. Institute for Textile Research, annual meeting. Waldorf-Astoria Hotel, New York, Nov. 5, 1936.

Cotton Mfrs. Ass'n. of North Carolina, annual meeting, Pinehurst, N. C., Nov. 5 and 6, 1936.

Tennessee Division, S.T.A., Knoxville, Tenn., Nov. 7, 1936.

American Society of Mechanical Engineers, annual meeting, New York, Nov. 30 to Dec. 4, 1936.

National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Nov. 30 to Dec. 5, 1936.

American Association of Textile Chemists & Colorists, annual meeting. Providence, R. I., Dec. 4 and 5, 1936.

Gaston County Division, S.T.A., probably at Gastonia, N. C., in December before middle of month.

Twelfth Southern Textile Exposition, Textile Hall, Greenville, S. C., April 5 to 10, 1937.

Ky., is now superintendent of Textile Products Industries, Inc., Chicago, Ill.

James **L. Mitchell,** formerly superintendent of Holyoke (Mass.) Worsted Co., is now assistant manager of Wyteville (Va.) Woolen Mills.

L. **A. Hamer,** former superintendent of the Tucapau Mfg. Co., Spartanburg, S. C. (now the Startex Mfg. Co.), has resigned to become superintendent of the Cowpens Mfg. Co. plant, nine miles out of Spartanburg. **Richard Carr** will succeed Mr. Hamer at the Startex plant where extensive machinery additions and replacements are under way.

K. **D. Forsyth** has become superintendent of the Winfield, Ala., plant of Alabama Mills Co. He was formerly overseer of weaving at the Aliceville plant.

W. **H. Spencer,** Clemson textile graduate of 1933, has resigned his position with Springs Cotton Mills, Lancaster, S. C., to accept a position with Watts Mills, Laurens, S. C.

Otto C. Hamel has resigned his position as superintendent of Bethayres (Pa.) Knitting Mills.

William Haas has resigned his position as superintendent of United Underwear Mills, Boyertown, Pa., and accepted a similar position with Crown Knitting Mills, Inc., Mohrsville, Pa.

Kerwin A. Little, formerly with Hockanum Co., Rockville, Conn., has been appointed superintendent of Broad Brook (Conn.) Woolen Co.

W. **V. Van Note** has returned to his teaching post at State College, Rahleigh, N. C., after a year's leave of absence to do research work at Carnegie Institute of Technology.

Charles van de Putte has recently resigned his position as assistant purchasing agent of Stonecutter Mills Co., Spindale, N. C., and is now connected with Abbeyville (S.C.) Cotton Mills.

C. **L. Zimmerman,** who took special work in textile chemistry at Clemson textile school in 1935, is now doing laboratory work with Renfrew Bleachery, Travelers Rest, S. C.

Roger Kimball has resigned as vice-president of Allen-A Co., Ltd., Hanover, Ont. Previous to 1935 he was for four years treasurer of the company at Kenosha. He is son of the late president of the company.

Burton A. Welcome, formerly of the Amoskeag Mfg. Co., has joined the sales organization of McCampbell & Co., New York, as head of the ticking department.

W. G. Blair, a graduate of New Bedford Textile School and with 20 years' experience in the field, has been made assistant professor of carding and spinning at Clemson (S. C.) Textile School.

Clarence L. Ederer, of R. J. Ederer Thread Co., has been reelected president of Philadelphia Textile Manufacturers Association.

Howard K. Houser has been appointed superintendent of the Rhyne-Houser Mfg. Co., Cherryville, N. C., and the Abernathy-Houser Mfg. Co., Statesville, N. C., succeeding the late William McLoud.

M. M. Tuttle, North Carolina State textile graduate of 1935, has been promoted to superintendent of Mooresville (N.C.) Cotton Mills.

Thomas H. Nelson has resigned as a teacher in the textile department of Clemson College to go with Pennick & Ford, Ltd. He is a son of Dean Thomas H. Nelson, of N. C. State College textile school, and received his bachelor's and master's degrees from N. C. State.

P. M. Feltham, formerly overseer carding, New Braunfels (Tex.) Textiles, Inc., is now superintendent of California Cotton Mills Co., Selma, Ala.

William Jewett, general manager of Farr Alpaca Co., Holyoke, Mass., has been elected a vice-president and a director.

Charles Schloss and **James H. Riley** of Lowell, Mass., have been confirmed by the governor's executive council as trustees of Lowell Textile Institute. They succeed **Edward B. Wentworth** and **Philip S. Marden.**

Edward M. Ladino of New Bedford, Mass., has been appointed technician in the Better Fabrics Testing Bureau, Inc., New York City. He is a graduate of the New Bedford Textile School, class of 1936.

George Fiendel, formerly chemist of the Rock Hill (S. C.) Printing & Finishing Co., has been promoted to assistant superintendent.

George Howell, formerly purchasing agent of the Rock Hill (S. C.) Printing & Finishing Co., has been promoted to divisional superintendent of shipping, purchasing, personnel, waste and yard.

Arthur H. West and **Joseph A. Ballweg** have resigned from Charles Chipman's Sons Co., New York, and have joined F. M. Grauer & Co.

Edward Weissauer has been named sales manager, with headquarters in New York, of Faulkner & Colony Mfg. Co., Keene, N. H.

Max Greenstone has been made New York sales manager of Hamilton Print Works, Paterson, N. J.

W. L. Smith has resiged as superintendent of the Mollohon Mill, plant of The Kendall Co., Newberry, S. C.

H. O. Edge has resigned as manager of the silk mill at Rockwood, Tenn., operated by the Roane Textile Corp.

Charles W. Folds, formerly of Chicago, has been appointed administrative assistant to **Luther Hodges,** general production manager of the Carolina Cotton & Woolen Mills, Spray, N. C., for outlying mills and will handle certain special reports.

Leroy T. Markert, for seventeen years office manager of the Hockanum Mills of M. T. Stevens & Sons Co., Rockville, Conn., has been transferred to the company's main office at North Andover, Mass.

Obituary

Adolphe Rusch, aged 73, senior member of the firm of Rusch & Co., New York, died at his summer home in Rumson, N. J., on Sept. 27. After graduating from the University of Geneva, Switzerland, he entered his father's firm in New York in 1881.

John **C. Welwood, Jr.,** 31 years old, vice-president and a director of the John C. Welwood Corp., New York, died in Santa Fe, N. M., Sept. 27.

Eugene J. Hogan, aged 53, wool buyer for Thomas Wolstenholme Sons & Co., Philadelphia, died at Ventnor, N. J.

Isaac **E. Witlan,** aged 80, who retired in 1916 after 43 years with S. N. Russell Mfg. Co., Pittsfield, Mass., died recently. He was superintendent for 25 years.

J. **Powers Rowland,** aged 36, assistant superintendent of Smyre Cotton Mills, Gastonia, N. C., died recently.

Henry L. Dursin, aged 70, general manager of Lafayette Worsted Co., Woonsocket, R. I., for the last 35 years died Sept. 28. He was born in Paris in 1866 and came to this country in 1901 to open the Lafayette plant.

James Arnold McLane, aged 57, Fall River, Mass., for many years superintendent of the Davis Mill, died Sept. 10. At the time of his death he was manager of the Birstol Supply Co., He had also served as manager of the Arkwright mills.

Bruce Griffin, aged 35, southern sales manager of Industrial Rayon Corp., with headquarters at Charlotte, N. C., died recently as a result of injuries received in an automobile collision near Greenville, S. C.

William H. Drexel, aged 53, head of Drexel Hosiery Co., New York, which he established last spring, died in Philadelphia on Sept. 10.

John Houston, aged 74, one of the owners of Piscataquis Woolen Co., Guilford, Me., died recently.

George L. Gilmore, aged 68, owner and manager of the Middlesex Bleach Dye & Print Works, died at his home in Lexington, Mass., on Sept. 12.

A. R. Hoover, aged 54, treasurer of Hoover Hosiery Mills, Concord Knitting Co., and Concord Silk Throwing Co., died recently.

Eugene Short, aged 50, Hickory, N. C., manager of the Icard Cordage Mfg. Co., died Sept. 19.

Cleveland M. Paylor, age 52, formerly secretary-treasurer of Dillon (S.C.) Cotton Mills Co., died on Sept. 14.

George W. Melcher, Bally, Pa., aged 72, died Sept. 23 at Allentown, Pa. Mr. Melcher had retired after many years as a manufacturer of silk ribbons in the plant then known as the Oriono Silk Mills.

Benjamin R. Dabbs, manager of the Chattanooga (Tenn.) office of E. I. du Pont de Nemours & Co., died Sept. 19. He was 57 years old and had been with Du Pont for 15 years.

Ralph S. Cogswell, aged 39, superintendent of Abbott Worsted Mills, Wilton, N. H., died Sept. 14. Mr. Cogswell was a graduate of Holy Cross College and, after working in several other mills, joined the Abbott organization in 1932.

James Matheson McCallum, aged 42, overseer of yarn and finishing departcents of Hampton Co., Easthampton, Mass., died on Aug. 30.

William Curry, chief engineer of Colonial Knitting Mills, Philadelphia, died Sept. 15.

Dr. J. Franklin Robinson, aged 73, a native of Wrentham, Mass., and for many years surgeon for the old Stark Mills, Manchester, N. H., died in Manchester, Sept. 5.

C. J. Becker, in charge of dyeing at General Hosiery Co., Fort Wayne, Ind., died recently.

TEXTILE WORLD'S

Cotton Digest

TWO of the leaders in the cotton textile industry voiced optimistic sentiments last month.

Russell H. Leonard, treasurer of Pepperell Mfg. Co., stated in his report to stockholders: "If the average rate of diminution (in spindleage) of the last 10 years should continue—and there is no reason to believe that it will not—the physical equipment will be reduced in from two to four years more to a point where the productive capacity should be in line with the demand."

That's an extremely important slant—and in line with our editorial observation last month that elimination of a large quantity of surplus equipment in the last decade furnished one of the major bases for our present hopefulness.

William D. Anderson, chairman of Bibb Mfg. Co., speaking of cotton textiles, said: "My opinion is that the bull movement is to come in the price of merchandise."

These two clear-cut statements are typical of the changed attitude in the industry today.—*Editor.*

1936–37 *Delta Crop Making History*

During the past weeks while newspapers over the land were hailing with regret the advent of a possible labor displacing machine, the mechanical cotton picker, Delta cotton planters were shaking their heads because they did not have such a machine—perfected and operating in their fields. In the meantime, an emergency call went out from one community for 10,000 cotton pickers; WPA offices announced that all able-bodied male workers would be suspended from the Federal relief rolls until cotton had been harvested; some planters were rushing imported Mexican labor in on flat cars; hoboes were giving the Delta a wide berth refusing to be impressed from vagrancy to the cotton field.

With an increase of approximately 15% in cotton acreage in the Delta—or over one-quarter million acres more than last year—plus wide use of "DPL" seed which produces shorter staples but more bales per acre, plus ideal growing and maturing weather, the largest Delta crop since the famous 975,000 bales of 1925 is being harvested, according to the Southern Combed Yarn Spinners Association. Estimates are pegged now to a probable 750,000 bales before the fields are clean. Of this baleage the percentage of 1⅛" or longer is below normal by some 30%, due to the large amount of short staple seed planted. (This seed yields 1 3/16" to 1⅛" stock.) Therefore we have an estimated 500,000 bales of Delta long staple cotton and a potential consumption of long staples amounting to 725,000 bales. The latter figures represent baleage of long staple cotton consumed last season, 1935-36. With the present schedule of operation time, low stocks and unfilled orders on books, it is safe to assume that will be the minimum long staple baleage necessary for this coming season of 1936-37.

The Delta crop movement reached its peak the week of Sept. 19 with warehouse receipts of 101,987 bales for that week. Sept. 26 showed a decrease with total receipts of 97,883 bales; from now on receipts will be falling off more and more each week. Total warehouse receipts to Sept. 26 amounted to 435,536 bales, over half the anticipated crop. By the end of October not a scrap of white will be left in the fields.

The grade and preparation of this crop are far better than normal; very little middling cotton has been received, most of it being strict middling and good. Mills which have run tests on the '36 crop (staple 1 5/32 and 1⅛) state that the character or breaking strength is fully equal to that of the 1934 crop which established a record over 8 previous years.

Spectacular because it is setting new precedents, establishing new records, 1936-37 Delta crop is making long-staple-cotton history.

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End-Month Fabric Sales Set Record

September came in like a lamb and went out like a lion in the gray goods division of the cotton fabrics market. Following the bullish cotton report, trading was extremely heavy and prices of many constructions advanced. The last several days of the month saw record-breaking sales and further price advances, a turnover of nearly 150,000,000 yd. being reported in three days. This resulted in advances of ¼ to ⅜c. on all constructions. The month closed with sales nearly 300% ahead of output and some mills booked solid to January. Percales advanced ⅛c. per yd.

The yarn market opened steady on both prices and demand. The low cotton report caused uncertainty among spinners; some marked prices up 2c., while others advanced only 1c. This situation settled somewhat later, and coarse carded numbers were active at full price. Combed peeler above 50s advanced. Another buying spurt was expected to follow the October report.

Institute to Have Branch Office at Washington

Directors of the Cotton-Textile Institute, meeting Sept. 30, approved the establishment of a branch office in Washington, to be effective probably about Jan. 1. It is emphasized that the Institute is not moving to Washington, as had been indicated in previous press reports. The plan for a branch office was developed primarily for convenience, especially in connection with negotiations with executive divisions of the Government. It is also felt that it is desirable to have a point of contact more accessible to southern members of the Institute, and one which would provide a meeting place in Washington for the many manufacturers, from both North and South, who have occasion to go to Washington from time to time.

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Carolina Yarn Tournament Oct. 29 and 30

The annual fall golf tournament and outing of the Carolina Yarn Association will he held Oct. 29 and 30 at the Carolina Inn, Pinehurst, N. C. This year, the entire inn has been taken over by the association, and absolutely no registration will be accepted unless the names appear on the regular invitation list of the association. Officers and members of the executive committee in charge of the tournament and activities are: Joseph R. Morton, president; Sam Diggle, vice-president; Nettleton P. Murphy, secretary; Henry Lineberger, treasurer; Fred Hallenbach, invitation committee; Joseph H. Mason, skeet shooting; R. J. Mebane, entertainment; and J. P. Rickman, prizes. Sam Diggle will be in charge of the golf tournament. The annual banquet will be held Friday night, followed by two hours entertainment in the ball room by a group of specialists from New York. The meeting this year is being held on Thursday and Friday so that those who wish may have an opportunity to attend the University of North Carolina and N. C. State College football game Oct. 31 at Chapel Hill, N. C.

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Prices and Activity

Key cotton prices of Oct. 1 and a month ago contrasted with those of the last two years follow:

	Oct. 1 1936	Sept. 1 1936	Oct. 1 1935	Oct. 1 1934
Spot cotton, N. Y.	12.64	11.87	11.05	12.50
Ditto, high previous month	12.63	12.89	11.10	13.40
Ditto, low previous month	11.87	11.70	10.65	12.55
10s hosiery cones	25½	24½	28½	28½
10s/2 carded skeins	25½	24½	27½	28½
20s/2 carded peeler warps	29½	27½	29½	31½
60s/2 combed peeler warps	55	55	56	60
60s/2 mercerized cones	68	68	70	73
37in., 3-yd. drill	9	8¾	9½	10½
38½-in. 64 x 60s	6½	5¾	6½	7½
36-in. 4-yd. 56 x 60s	7 9/16	7¼	7½	8½
Denim, 2.20s	13½	13	15	10½

Statistics of particular interest to cotton manufacturers, showing Aug. operations and the raw material situation:

Spindle activity,
115.8% capacity, or 7,573,009,997 spindle hours
Cotton consumed ..... 574,289 bales
Cotton exported ..... 182,487 bales*
Cotton imported ..... 12,671 bales
Cotton ginned to Sept. 1 ..... 1,373,868 bales

July operations for comparison:
Spindle activity,
119.8% capacity, or 7,859,348,820 spindle hours
Cotton consumed ..... 603,203 bales
Cotton exported ..... 156,262 bales*
Cotton imported ..... 20,305 bales
Cotton ginned to Aug. 16 ..... 208,327 bales

* Decrease in exports due to shortage. September export of new crop is high, according to preliminary estimates.

Pequot Organizes Own Selling House

Pequot Mills, Salem, Mass., recently established its own selling organization which formally opened for operations Oct. 1. General sales offices are in the Clarence Whitman & Sons Bldg., 21 East 26th St., New York, and branch offices will be in Boston, Philadelphia, Cleveland, Chicago and San Francisco. Paul B. Welles, who for many years was in charge of selling Pequot products for Parker, Wilder & Co., has been made general sales manager of the new organization. Four former salesmen of Parker, Wilder & Co. will carry on for Pequot in the field; viz., Ernest Keepers, Boston; Campbell B. Carmichel, New York; Thomas B. Ballantyne, Chicago; Ernest H. Lindsay, San Francisco. Four new men have been added: Robert J. Roberts, formerly with Amoskeag Mfg. C., will assist Mr. Carmichael in New York; Joseph I. Hartman, for a number of years with Wilson & Bradbury, Inc., will have the Philadelphia territory; Stewart S. Littlefield, formerly with F. P. Root Co. and more recently with John S. Littlefield & Co., will take over a new territory, with headquarters at Cleveland, Ohio; Carl Badger, formerly with Amoskeag, will cover the Southern territory.

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Pacific To Refund Tax

The announcement that Pacific Mills is prepared to reimburse customers for processing tax claims against goods sold with protective clauses prior to Jan. 6, 1936, created quite a stir in markets recently. The amount involved in these reimbursements is $556,412 less 3.84% for expenses. Great importance is attached to this announcement as Pacific was the first to give out this information openly on a broad range of converted goods.

With reference to plans of other mills, it is understood that most converters are still engaged in getting together data on which to base settlement of process tax refund claims which customers have against them.

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Industry Briefs

Analysis of the spindle activity report for August indicates that each active spindle in the South operated 338 hours that month or 2 hours over the two 40-hour compliance basis for the period. This is contained in a study recently sent to its members by the A.C.M.A., which study closes with the sentence "The Textile industry is now in a most favorable condition and it must not destroy itself by reckless speeding."

The revised Simplified Practice Recommendation R27, Cotton Duck, has been accorded the required degree of acceptance by the industry, and is to become effective Nov. 1, 1936, according to the Division of Simplified Practice, National Bureau of Standards. The revised recommendation will be identified as R27-36.

Cotton Manufacturers Association of North Carolina will hold its annual convention at Pinehurst, N. C., Nov. 5 and 6. Directors of this association have also named a committee to act on the proposal that textile machinery be installed at the Jackson Training School, State Institution for boys, at Concord, N. C.

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Cotton Mill News

Florence (Ala.) Cotton Mills, which have been idle several weeks while $90,000 worth of new machinery was installed and $10,000 worth of improvements made on the building, have resumed operations.

Pepperell Mfg. Co., Opelika, Ala., has awarded contract to Batson-Cook Co., West Point, Ga., for one-story top addition to local mill, 36x140 ft., to be used for housing additional spindles and looms, to be transferred from mill at Biddeford, Me. About 600 looms will be installed, with accessory equipment.

Cowikee Cotton Mills, Ozark, Ala., are replacing old machinery and modernizing the mill. Spindles will be increased from 5916 to 9444.

Willingham Cotton Mills, Macon, Ga., have plans for new one-story mill addition on Roff Avenue, to be used for storage and distribution. Cost about $21,000.

Maverick Mills, East Boston, Mass., have filed plans for a mill addition 60x175 ft., one-story high, to cost about $75,000. E. C. Blanchard Co., 940 Broad St., Lynn, has the general contract.

Thomas French & Sons, Ltd., Manchester, England, manufacturer of narrow fabrics and allied textile products, has leased one of the former mill buildings of the Stevens Textile Mfg. Co., Stevens Street, Fall River, Mass., heretofore used as a weaving unit, and will equip for new American branch mill.

Bordeaux Textile Co., East Newark, N. J., has leased a floor in Building No. 39 of former local mills of Clark Thread Co., totaling about 18,000 sq. ft. floor space, and will equip and occupy for new plant for manufacture of cotton print goods.

Sellers Mfg. Co., Saxapahaw, N. C., is replacing all of the old spinning frames with new long draft frames made by the Whitin Machine Works. All of this work is nearing completion.

Firestone Tire & Rubber Co., Akron, O., has purchased the idle property of the Oxford Knitting Co., Ingersoll Ave. and Oxford St., Woodstock, Ont., from Mercury Mills, Ltd., Hamilton, Ont., and will equip same for the manufacture of cord tire fabric.

Scranton (Pa.) Lace Co., has plans under way for new one-story addition to mill. It is reported to cost over $50,000.

Industrial Cotton Mills Co., Anderson, S. C., has let contract to Daniel Construction Co. of Anderson, for a two-story addition to the cloth room to cost about $70,000.

Hampton Spinning Mill, Clover, S. C., early in October completed the installation of 10,000 additional spindles, bringing the number to 43,000 spindles.

American Spinning Co., Greenville, S. C., has let contract to Potter & Shackleford for general repairs to the main mill, the work to cost about $20,000.

Arcade Cotton Mills, Rock Hill, S. C., is being painted inside and out. The picker room has been equipped with Saco-Lowell blending reserves. Taylor slasher control and Hermas shearing machines have been installed. The carding department has been equipped with long-draft roving. The spinning department has long-draft spinning, Parks-Cramer cleaning system, and Barber-Coleman spoolers and warpers.

Bonham (Tex.) Cotton Mills, is planning a modernization program which will include replacing all old warp-spinning frames with new long-draft warp frames, revamping preparatory machinery, and installing a number of new cards and drawing frames. J. E. Sirrine & Co., Greenville, S. C., are engineers.

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Cotton Financial News

Lowe Mill, Huntsville, Ala., owned by Enderley Corp., is being liquidated by McCord, Inc. The mill is equipped with 28,672 spindles and 732 looms for the manufacture of print cloth. About $700,000 were spent in modernizing the mill in 1928 and 1929.

Winville Corp., Lawrenceville, Ga., formerly known as Lawrenceville Yarn Mill, has been put back into operation after being idle for several years. J. T. Byrum, formerly of Salisbury, N. C., is superintendent.

Barnard Mfg. Co., Fall River, Mass., has been laying plans to reopen. A favorable extension of its RFC loan has been obtained.

Butler Mills, New Bedford, Mass., have been turned over to that city in part payment of taxes totaling $363,647 due on the plant for 1932, 1933, 1934 and 1935.

Nashawena Mill, New Bedford, Mass., which closed down several months ago, is expected to reopen soon as a unit of 72,000 spindles and 1,000 looms.

Spool Cotton Co., New York, distributors of Clark's O.N.T. and J. & P. Coats threads, has acquired the Crown Fastener Co., Warren, R. I., which recently bought a factory in the latter place owned by the Mount Hope Finishing Co.

Florence Mills, Forest City, N. C., and the **American Spinning Co.,** Greenville, S. C., have been consolidated, the latter becoming the American Spinning division of the Florence Mills, effective Oct. 1. Allen F. Johnson, of Greenville, is president.

High Point (N. C.) Spinning Mills, Inc., recently formed with capital of $100,000, plan early operation of local mill. Property will be taken over and developed for new mill. Company is headed by George J. Johnson and Horace S. Hayworth, High Point.

Thread Spinners, Inc., Lincolnton, N. C., operating 14,000 spindles on combed thread-yarns has been acquired by Paulson Linkroum Thread & Yarn Corp., New York. The thread will be sold under the brand Pauline. Leonard C. Linkroum is now president and treasurer of Thread Spinners, Inc.

Stead & Miller Co., Philadelphia, draperies, has discontinued manufacturing in Philadelphia and does its weaving in the South.

Apponaug (R. I.) Co. reports net profit of $9,053 for the 12 months ended June 30, 1936, as compared with net loss of $57,312 for preceding year.

Cowpens (S. C.) Mills, closed for the last three months, has resumed operations with W. G. Day as superintendent.

TEXTILE WORLD'S

Wool Digest

WOOL fabrics were among the most outstanding and significant news features of Fashion Futures, held last month under the auspices of the Fashion Group. The fact that the entries had all been chosen by an impartial jury makes it clear that wool achieved this rank on its merit, thus reflecting credit upon the creative styling that has been put into this branch of the industry during recent years.

This is only part of the story, however. This new development in styling has been going on for some time, but promotion of it has not kept pace until rather recently. Here is where the activity of the Associated Wool Industries comes in. It will never be possible to measure the part played by this agency in increasing the knowledge of the new style developments in wool among general consumers. However, we are convinced its contribution has been a real one, and one which means dollars and cents to the industry which is supporting it. If we were a wool manufacturer, our horse sense would lead us to accept that conclusion as a pretty good bet, and to continue to support what would appeal to us as a money-maker for ourself.—*Editor.*

Market in Lull; Tropicals Advanced

The wool goods market was reflecting the sluggish movement of men's and women's clothing at retail. Some stores were still offering clearance sales of summer lines as September ended and temperatures had not fallen to a point to stimulate much new fall business. Both wholesale clothing and piece goods markets were in a lull except for occasional odd items. Prices, nevertheless, are holding at the levels recently established by the larger producers. Tropicals were advanced 2½ to 5c early in October.

Most cloths are selling below cost if current wool values are taken into consideration. Mills are also faced with higher costs next year as the result of various social security measures which become operative in States where most of the industry is located. Many mills at the present time are curtailing and unfilled orders are declining. However, sales agents are optimistic that new business will come in during the next month to six weeks which will turn the trend in the opposite direction.

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Women's Wear Specialties Are Fair

Business in certain women's wear specialties is fair and in that particular is better than the rest of the market. Some mills have been operating overtime on fleeces and similar sports novelties. Dress goods were moving fairly well but at low prices. Demand for lightweight broadcloths was one of the few bright spots in the market. Call for dressy coatings was below expectations and sales of women's garments at wholesale were improving slowly. However, there was brisk demand for sports garments and various types of children's wear. Meanwhile, more formal garments were meeting slow sale. Sports wear may dominate until November, when demand for dressy garments should set in and carry through the mid-winter season.

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Commercial Standard on Wool and Part-Wool

Revisions in commercial standards for wool and part-wool fabrics (TS-2202) calculated to make possible a greater degree of agreement on the part of the various interests, are being circulated among the affected trades by H. A. Ehrman, Division of Trade Standards, of the National Bureau of Standards, Dep't. of Commerce. Changes are to meet definitions as set in certain court cases and to include a sulphuric acid method of test. The N.A.W.M. is urging acceptance.

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Sees Place for Casein Wool

Interesting analysis of "Lanital"—the Italian casein fiber—appears in a letter to the editor of *Textile Research* from H. C. Borghetty, chief chemist of the Aspinook Co., Jewett City, Conn. In part he says:

". . . The investigators of this fiber so far have been concerned merely with comparing it to wool, and they all seem to rush to the premature conclusion that, as it is not an exact duplicate of wool, then it has no field of application. There is no doubt whatever that the new fiber does not reach the perfection of wool and, therefore, it is rather disappointing to any investigator who compares the two fibers directly. Casein wool, however, will probably have a field of application in fabrics in which it is incorporated with wool up to about 50—60%.

"The new fiber resembles wool in its chemical constitution and comports itself as wool during dyeing, excepting that it has a much greater affinity for the dyestuffs. In its physical aspects, particularly when viewed under the microscope, it shows no wool characteristics whatever and resembles rayon. It burns like wool and behaves similarly to wool when treated with alkali, excepting that is swells quickly in the presence of even weak alkaline solutions and takes on a pulpy appearance. This susceptibility can be greatly alleviated by adding formaldehyde to the solution. Its outstanding behaviour is that it has no felting qualities whatever, but when mixed with wool it is capable of greatly facilitating the felting action of the wool. Rayons and cottons, instead, hinder the felting properties of wool.

"Should wool fabrics appear on the market containing large percentages (up to 50%) of 'Lanital' it will be very difficult and puzzling to distinguish the amounts of the two fibers, because the resultant fabrics behave like wool. The only means of detection thus far is to utilize its greater resistance than wool to a boiling caustic bath in the presence of formaldehyde. . . ."

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Wool Tops Are Lagging

Wool top futures were drifting downward in price through September. Prices of spots were as follows: Sept. 4, $1.03½; Sept. 11, $1.04; Sept 18, $1.02½; Sept. 25, $1.02. A fair aggregate of business was reported in futures but spots were dull. There was reported to be a sharp advance in the French top market at Roubaix toward the end of September due to the weakness of the franc.

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Rag Market Turns Upward Again

The rag market rose during early September with softs rising from August's low of 12.50c to a basis of 15.00c. Mixed rough cloth went from 5c to 6.50c. The movement was in line with expectations for increased use of reworks in the heavy weight season. However, the improvement in basic mixtures outran the movement of graded rags. Importation of foreign woolen rags has become a matter for comment.

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Prices and Statistics

Key wool prices of Oct. 1 and a month ago, contrasted with those of the last two years:

	Oct. 1, 1936	Sept 1, 1936	Oct. 1935	Oct. 1, 1924
Fine and fine med. territory	$0.85	$0.85	$0.68	$0.73½
Ohio ⅜s	.39½	.39	.34½	.30½
Tops fine 64-66s	1.09	1.08	.99	.97½
average ⅜s	.98	.97	.86	.81½
high ½	.90	.88	.78	.76½
Noils, fine	.68	.68	.61	.52
½	.55	.55	.47½	.41½
2-40s 60s wsted. yarn	1.52½	1.52½	1.44½	1.38½
8020 serge	1.82½	1.82½	Not Quoted	Not Quoted

Current statistics on wool consumption and mill activity follow, activity percentage based on single 40-hour shift, 5 days per week. July is a 5-week month, August a 4-week month.

	July	August
Wool consumed, clean equiv.		
Apparel, wool, lbs	24,695,000	23,004,000
Carpet, wool, lbs	9,265,000	8,624,000
Machinery activity		
Looms (50" and wider)	86.9%	91.7%
Carpet looms	58.9%	71.1%
Combs	115.8%	132.2%
Worsted spindles	73.6%	84.7%
Woolen spindles	115.6%	125.1%

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World Wool Output May Change Little From 1935

Present prospects indicate that world production of wool in 1936 will be about the same as in 1935, according to the Bureau of Agricultural Economics. Last year the total output of wool, outside of Russia and China, was 3,278,000,000 lb., the smallest in six years.

The bureau sees little change in pro-

duction in prospect in the United States and Canada, but says that some increase is "probable" in Europe and in countries of the Near East. Favorable conditions for wintering sheep in the Southern Hemisphere countries are reported, and increases in numbers of sheep in the Union of South Africa and in New Zealand.

The number of sheep in Australia is probably less than the unusually large number reported at the beginning of 1935, but weather conditions in Australia point to an increased yield of wool per sheep in 1936 compared with 1935.

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Japanese Wool Industry Find Profits Not So Large

Our correspondent in Japan supplies an interesting table disclosing that Japan's exports of wool yarns and fabrics now amount to nearly five times her imports of the same, the two sums having passed each other between the years 1932 and 1933. The figures are in thousands of yen value:

	1931	1932	1933	1934	1935*
Imports.....	22,685	15,805	10,357	7,024	7,675
Exports.....	2,381	6,378	18,063	42,605	36,473

*First 10 months only.

The picture of their profits and dividends might well make American mills jealous though from the Japanese viewpoint profits have been disappointing for the last 18 months due to rise in world values of raw wool. The following is the profit story by half-years covering only the 10 leading mills:

	Capital in yen	Profit % on capital	Dividend rate %
1930—2d half.....	55,875,000	15.4	6.8
1931—1st half.....	56,125,000	23.2	10.3
1931—2d half.....	56,875,000	26.9	12.0
1932—1st half.....	59,525,000	31.3	12.8
1932—2d half.....	59,625,000	31.2	13.2
1933—1st half.....	61,375,000	37.4	15.1
1933—2d half.....	63,250,000	43.3	16.9
1934—1st half.....	66,750,000	32.1	15.8
1934—2d half.....	68,750,000	23.6	10.5
1935—1st half.....	69,750,000	18.2	9.3
1935—2d half.....	66,250,000	24.1	10.3

Pressure on Japanese wool goods mills is said to be very great to cut costs, and merchants are pessimistic as they face higher wool prices. Plans are afoot to stimulate wool growing in Manchukuo.

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Wool Goods Briefs

Percy A. Legge, for many years prominent in the wool yarn trade, has opened a New York office at 432 Fourth Ave., in charge of Oliver L. McCurdy.

Richard C. O'Brien, Boston, has been named as sales agent for the Lafayette Worsted Spinning Co., Woonsocket, R. I.

Mohawk Carpet Mills advanced prices effective Sept. 26.

Harris Tweed Association, in an effort to stop the marketing of spurious and imitation Harris Tweeds under the name of genuine Harris Tweed, is calling the attention of the trade to the fact that a trade mark has been granted to it which makes such imitation unlawful and subject to prosecution. This trade mark is registered both in Washington and Great Britain.

Associated Wool Industries has issued a group of "Integrated Promotions" featuring the wardrobe idea. They are in the form of a folder, grouped in index manner, to such department heads as The Merchandise Manager, The Buyer, The Display Manager, The Advertising Manager.

American Woolen Co. has sent a letter to the trade advising of the increase in the cost of manufacturing that will take place after the first of the year, incident to the operation of the social security legislation and setting that increase at 7½c. a yard.

Biltmore (N. C.) **Industries** homespun uniforms have been issued the Asheville, N. C., police through the interest of Fred L. Seely, president of the concern. Mr. Seely felt that police of this mountain city would be more in keeping with their environment by adopting a uniform made by mountaineer weavers who have been famed for generations for their handiwork.

Institute of Carpet Manufacturers of America has taken steps to obtain promotion of wool-pile floor coverings as gift merchandise during the Christmas shopping period. Retail store managers are said to be interested.

Cocheco Mill in East Rochester, N. H., and Gonic Mfg. Co., in nearby Gonic, both owned by Fulton Rindge, have given a $15 bonus to all employes who have worked at the plants six months or more. The bonus was in appreciation of those who stuck to their jobs during trying times of the past year when some of the workers went out on strike at both plants.

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Wool Mill News

Los Angeles (Calif.) **Felt Co.** is preparing to erect a one-story warehouse building at an approximate cost of $25,000, at 5920 Wilmington Blvd.

Peerless Woolen Mills, Rossville, Ga., have about completed the $400,000 improvement and machinery has been installed in the new 140x400 ft. weave shed.

Textile Waste Supply Co. has moved from 25 Broadway to a 4-story building in Chelsea, Mass., where it has a railroad siding and complete layout of modern baling presses, cutters and sorting tables.

M. T. Stevens & Sons Co., North Andover, Mass., has awarded a general contract for a two-story brick and steel dye house unit, and a two-story office building extension at Rockville, Conn. The estimated cost of this new construction is $100,000.

Blackburn Worsted Co. has moved from Northboro, Mass., to Westboro, Mass., and all the machinery is now housed on the first floor of the Westboro Underwear Co. plant. The company is now operating seven looms on men's wear worsteds.

Packard Mills, Webster, Mass., have let contract for a frame building, four stories, 50x80 ft., with one-story office building, 30x 40 ft., to the Brien Building Co., Woonsocket, R. I.

Dartmouth Woolen Mill, Claremont, N. H., held a public "open house" Sept. 8, to mark completion of its new weave room. The new section is so constructed that two more stories may be added should increased business warrant. Production with the new automatic looms will be increased about 25 per cent.

Samuel Hird & Sons, Passaic, N. J., which recently acquired the plant formerly Pennsylvania Textile Mills in Clifton, N. J., is getting the plant in readiness for full operation.

Orr Felt & Blanket Co., Piqua, Ohio, has work under way on new two-story addition, totaling about 30,000 sq. ft. floor space, to be used largely for storage and distributing division. Cost close to $40,000.

Collins & Aikman Corp., Philadelphia, Pa., has asked bids on general contract for two-story and basement mill addition at Viola and 51st Sts., 70x240 ft., estimated to cost close to $100,000.

Frank Cohen & Bro., Frankford, Pa., have equipped a mill with 50 automatic and box looms which they are operating as the Dauntless Worsted Mills. E. Satinsky is superintendent. Equipment will be doubled if operation proves successful. A general line of men's wear worsteds, including all-worsted and manipulated, will be made.

Texas Wool Scouring Corp., San Angelo, Tex., care of Abraham Mayer, San Angelo National Bank Building, recently organized, has plans under way for new local mill. It will consist of several one-story units, estimated to cost about $100,000 with machinery.

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Wool Financial News

Joseph Hall & Son, Inc., Norwich, Conn., are seeking to reorganize under Section 77B.

James J. Regan Mfg. Co., Rockville, Conn., has been sold to W. P. Dunn, Providence, R. I., for resale.

Lisbon (Me.) Spinning Co., closed since February, 1935, has been purchased by a syndicate which will start operations soon. Percy Plummer, assistant agent of the mill, has been notified of the sale.

Salter Mills Co., Saugus, Mass., has been incorporated with capital of 400 shares of stock, no par value, to take over and succeed to the Salter Mills, operating a local woolen mill and carbonizing plant. Albert Salter is president of new company, and Paul Salter, treasurer.

Wovenfine Mfg. Co., Manistee, Mich., has been organized with capital of $50,000 to operate a local woolen mill for production of fabrics for automobile and allied service. Herbert E. Exner, Manistee, is principal incorporator and representative.

Yale (Mich.) **Woolen Mills** has increased its capital stock from $500,000 to $1,000,000.

Botany Worsted Mills, Passaic, N. J., reports net loss of $197,094 for the first half of 1936, comparing with net loss of $161,300 for first half of 1935.

Cleveland (Ohio) **Worsted Mills Co.** has leased its two-story and basement mill at Emerald and Wishart Streets, Philadelphia, Pa., known as the Rowland Mill, to the Fleck Co., Philadelphia, which will occupy for another branch of industrial operations.

Highland Worsted Mills, Central Falls, R. I., is in the hands of Joseph Goodman as permanent receiver. Liquidation was indicated.

Brookholm Worsted Mills, Providence, R. I., is in the hands of Daniel H. Morrissey, as permanent receiver.

Bridgewater (Vt.) **Woolen Co.,** operating under Robert M. Sharpe, as receiver, made a profit of $8,566 for the second quarter of 1936.

Staunton (Va.) **Woolen Mills, Inc.,** (W with maximum capital of $50,000, has been chartered to engage in woolen manufacture. George W. Musgrave, of Webster, Mass., is president. Plant will be erected with the aid of local capital.

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TEXTILE WORLD'S

Rayon & Silk Digest

ALTHOUGH at this writing it is too early to appraise mathematically the results of the Silk Parade, indications are that the third annual occurrence of this event was most successful. Total advertising outlay by stores throughout the country as a tie-up with the Parade is believed to have set a record. Many stores have reported substantial increases in sales of silk merchandise as a result.

The cumulative effect of these annual Parades is making itself felt. The International Silk Guild, on the basis of past experience, has been enabled to evaluate the different parts of the program and to concentrate upon the most business-like and efficient methods.

The future of silk as a textile material, particularly in the woven field, is admittedly a questionable factor. However, it is safe to say that if the decline in its consumption *can* be stemmed, it will be largely through intelligent promotional activities such as the Silk Parade.—*Editor.*

Rayon Competitive F. T. C. Testimony Shows

A picture of consistently competitive prices which occasionally caused loss of business to even the major producers evolved out of testimony presented at the Federal Trade Commission hearings in New York, when the defense had its innings in the inquiry into alleged monopolistic practices in that industry. The defense opened its case Sept. 14 and was still being heard at the end of the month.

Two groups of witnesses, one speaking for rayon producers and the other for rayon fabric knitters, testified at length and supplemented their oral evidence with substantial quantities of data—all of which was to the effect that, during the 1930-1933 period when price-fixing was alleged to have been practiced, the industry was on a strictly competitive basis. H. W. Rose, the assistant general sales manager of the Viscose Co., a major witness, was on the stand for several days. Substantiating his assertion that producers were keenly competitive in selling to knitters, he cited cases in 1932 when his company lost the business of the Lumb Knitting Co., a Marshall Field unit, and also the business of Walter A. Moyer, underwear knitter, of Ephrata, Pa., because other producers undersold the Viscose Co. to these customers.

An especially interesting point in Mr. Rose's testimony was his disclosure that since 1931, the Viscose Co. had suffered a drastic drop in its sale of yarn to knitters. He quoted the following figures, showing the drop between 1931 and 1933, and added that since 1933, Viscose Co. sales to knitters have dropped about 50% below the 1933 figure:

1931	18,000,000 lbs.
1932	10,000,000 lbs.
1933	8,000,000 lbs.

Mr. Rose emphasized that price lists were an unreliable index to market levels, as often yarn was sold at prices which were out of all relation to the lists. This was confirmed in testimony offered by E. C. Lang, of the Du Pont Rayon Co., who also brought out that much of his firm's business was on qualities of yarns not included in price lists.

Begnining Sept. 24, various knitters' representatives testified, including H. B. Keuelson, who was executive secretary of the Rayon Circular Knit Fabrics Association, created to meet NRA problems. Discussing the Aug. 10, 1933, meeting of that body, which he attended, Mr. Kebelson emphatically denied the assertion of Isadore Reinhard, of Arcadia Knitting Mills, that Hiram S. Rivitz, president of Industrial Rayon Corp. had made a speech on that occasion relative to a previous price cut. This statement by Mr. Kebelson was supported by A. Grodnick, of the Algro Knitting Mills, who attended the meeting as treasurer of the Association. Asserting that no such statement was made by Mr. Rivitz, Mr. Grodnick added that generally speaking, he found yarn prices to be competitive and that no one had ever asked him to fix prices on fabrics he manufactured.

An interesting point in Mr. Grodnick's testimony was his assertion that, far from fixing cloth prices, the fabric knitters never really did develop a code but on the contrary they were antagonistic among themselves on the issue throughout the life of the NRA.

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Silk Prices Steady, With Demand Strong

Steady buying by weavers and a fair degree of price stability were the chief features of the raw silk market during the last month. The upward trend of prices at the end of August proved temporary and it was followed by a surprisingly steady tone. The evenness of silk levels through September is shown in the fact that the Commodity Exchange, New York, reported crack double extra 13-15 78% as closing at $1.65 on Sept. 2, while the same closed at $1.66 on Sept 28. The call from knitters and weavers was so active that the market expected the September total of deliveries to prove a bullish influence. Hosiery mills bought fairly steadily, but, as their stocks are still low, a further pick-up at that end is looked for this month.

Finer Acetates Cut

Led by the acetate division of E. I. duPont de Nemours & Co., acetate yarn producers early this month announced a price reduction of 3 to 10c. on all except 150 den. and coarser yarns. The cut was attributed to need for wider market and for equalization of competitive finishing costs between viscose and acetate fabrics.

Other developments were: North American Rayon Corp. on Oct. 1 changed 150-40 knitting from 55c. to 58c. less 5% discount, a nominal rise; on Oct. 9 the Viscose Co. announced its 5% discount would end Dec. 31.

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Rayon Stocks Now 1/3 Month's Sales

Continued active buying and continued shrinkage of available stocks featured the rayon yarn market through September. Producers reported that demand was coming from all branches of the weaving industry and that knitters also were placing substantial business. The orders were spread fairly evenly among a wide range of deniers, it was stated. At the beginning of October producers were booking to the end of November and looked for the present active call to continue through the month.

Stocks in producers' hands which normally equal a month's sales, now are down to one-third of that figure.

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Favors "Acetate Rayon"

Holding that the term "acetate" is descriptive only of a process of manufacture and not of a textile fiber, The National Better Business Bureau, Inc., has issued a statement recommending that "acetate" be used solely as a modification of the term "rayon."

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Current Rayon Data

Key rayon prices and statistics follow:

Prices:	Oct. 1 1936	Sept. 1 1936	Oct. 1 1935	Oct. 1 1934
Viscose process				
75 denier (18-30 fils.)	$0.90	$0.90	$0.87	$0.90
100 denier (40 fils.)	.79	.79	.76	.75
150 denier (40 fils.)	.60	.60	.57	.55
Acetate process				
150 denier	.60	.60	.60	.70
Cupra. process				
150 denier (112 fils.)	.65	.65	.62	.70
Rayon, staple			Not	Not
1½, 3 & 5½ den	.28	.28	quoted	quoted

Statistics**	—Indices of Deliveries*— 1936	1935
Month		
September	537	583
August	633	550
July	614	433

*Rayon Organon. **Exclusive of Acetate. Daily aver. 1923-25 = 100.

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Current Silk Data

Key silk prices and statistics follow:

Prices	Oct. 1 1936	Sept. 1 1936	Oct. 1 1935	Oct. 1 1934
Crack XX 13/15 white 78%	$1.71¼	$1.66	$1.96½	$1.21½
Tram, 5thd Japan 85%	2.40	2.34	2.67½	2.10
Tram Crack XX 78%	2.29	2.25	2.50	1.85
60s-2, spun silk	2.95	2.95	2.95	2.95

Statistics	Imports	Approx. Deliveries	Stocks at Warehouses
July, 1936	31,388	36,658	30,139
Aug., 1936	41,702	42,016	29,825
Sept., 1936	45,437	45,709	29,553

Parent DuPont Co. Absorbs Rayon Unit

Reports which had been current in the market that the DuPont Rayon Co. would be dissolved as a separate company to become a division of the E. I. du Pont de Nemours Co. were confirmed by the parent company on Sept. 20. The change took effect Oct. 1. Under the new set-up the rayon department, excepting the fabric and advertising departments, will be moved to the general headquarters of the parent company in Wilmington, Del., about June 1937. Among the executives remaining in New York will be E. C. Harrington, advertising manager and Alexis Sommaripa, fabric department manager.

L. A. Yerkes, who has been president of the Du Pont Rayon Co. since its formation as Du Pont Fibersilk Co. in 1920, becomes head of the new department, having the title of general manager, while B. M. May, vice-president of the separate company will be assistant general manager of the new department. The new rayon department comprised five units; acetate, Cellophane, technical, rayon and control.

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Deliveries of Rayon Cloth Show Rise

The increased consumption of rayon yarn by rayon weavers continued through August, according to monthly index figures made public Sept. 25 by the National Rayon Weavers Association.

Rayon woven cloth deliveries follow:

(Developed from compilations of the operations of manufacturers reporting to the National Federation of Textiles, Inc., and to the National Rayon Weavers Association, Inc.)

	July 1936	August 1936
(1934 = 100)		
Taffetas, Twills, Linings and Other Staples	250	262
Dress Goods, Novelties, and Other Fancies	99	125
Total	151	173

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Golf—or Business?

Market speculation as to whether the recently formed Silk Golf League, which includes many leaders in the raw silk, thrown silk, dyeing, weaving and hosiery branches, might eventually become a trade association were revived at the end of September when the League announced plans for its second golf tournament on Oct. 8. Members of the new organization who were questioned said that so far the League is only a social body and that no plans to transform it into a trade association had been disclosed to them. The president of the League is Paolino Gerli, of E. Gerli & Co., who is also president of the International Silk Guild; other prominent silk men identified with the League include H. E. Bishop, executive secretary of the Throwsters Research Institute, E. N. Ditton, of Gotham Silk Hosiery Co., R. V. Z. Salembier, Weber de Vore and S. S. Reinhard.

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Silk Parade Aids Stores

Early reports from stores on the sales results of the third annual Silk Parade, held Sept. 21-26, under auspices of the International Silk Guild, indicated that the event had helped them in two ways: First, store-wide participation this year served to push sale of silk merchandise which had not been included in the preceding promotions; and second, there was a rise in consumer demand for quality lines which stores attributed directly to the publicity given silk during the drive.

One notable aspect of this year's parade, stated R. D. Jenkins, vice-president of the Guild, was the inclusion of numerous stores that had not previously featured quality merchandise but which recently have fallen in line with the trend toward higher grade lines. During the drive, the Guild distributed to more than 7,500 retail units, large quantities of promotional material and sales helps covering all the chief store departments in which silk is featured.

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Rayon-Silk Mill News

Douglas (Ga.) **Silks Production Co.** recently opened a plant there, and has 20 operatives on payroll.

Tubize Chatillon Corp., New York, N. Y., has asked bids on general contract for proposed new additions to viscose yarn mills at Rome, Ga., comprising two main one and multi-story units, 147x339 ft., and 77x96 ft., respectively, with number of smaller structures, saw-tooth roof type. Present filter plant will be doubled in capacity, with extensions in pumping station and other mechanical departments. Entire project will cost over $2,000,000. Robert & Co., Inc., Atlanta, Ga., are the engineers.

General Textile Mills, Inc., Lonaconing, Md., have begun an expansion program at local mill, to include installation of 36 new twisting machines and accessory equipment.

Paul Whitin Mfg. Co., Northbridge, Mass., has taken over property at Riverpoint, R. I., formerly the Royal Mills, and will establish a new rayon weaving mill at that location to operate as the Kent County Mills.

A. H. Rice Co., Pittsfield, Mass., has installed an H-W rayon twist setter and conditioner.

Berger & Sherin, Inc., Elmira, N. Y., has bought a rayon conditioner from Industrial Dryer Corp.

Vaucanson Silk Mills, Inc., Port Jervis, N. Y., has plans under way for new one-story addition, to be equipped as a dye house. It is estimated to cost close to $45,000, including equipment.

Skenandoa Rayon Corp., Utica, N. Y., is installing new machinery and equipment to bring the total annual production to 5 million pounds. The expansion is part of a program instituted in 1928, when the firm increased its output from 1¼ million pounds to 3 million pounds; which in 1935 was further increased to 4 million pounds. The company will ultimately occupy the entire former plant of the Skenandoa Cotton Co., to permit an annual production of 10 to 12 million pounds.

Sapona Cotton Mills, Asheboro, N. C., (silk division) has installed a conditioner for twist setting made by Industrial Dryer Corp.

American Enka Corp., Enka, near Asheville, N. C., has plans nearing completion for new addition to mill, totaling about 100,000 sq. ft. of floor space, to provide for expansion in coning and other divisions. Company will also make extensions in power house, with installation of new 3000-kw. turbo-generator unit and auxiliary equipment. Entire project will cost over $350,000, with machinery. Contract recently has been let to Potter & Shackelford, Inc., Greenville, S. C., for two-story building, 110x130 ft., to be equipped for a gymnasium for employes.

Industrial Rayon Corp., announced Oct. 8 that its new plant would be built on a 407-acre site near Painesville, Ohio, a few miles from Cleveland.

Old Forge (Pa.) **Silk Co.** has made alterations and improvements in mill, with installation of new equipment.

Goodman & Theise, Inc., has established a silk weaving business in the former B. Edmund David Co., plant in South Washington Ave., Scranton, Pa. The plant will eventually employ 200 workers, according to E. D. Goodman, general manager.

Georgetown Silk Co., with main plant at Wilkesbarre, Pa., has commenced operations in its new silk throwing plant located in Durham, N. C. An H-W conditioner for twist setting has been installed. The Durham plant will throw all types of hosiery yarn, and will be under the management of W. A. Seem, and their southern sales representative, Charles A. Snodgrass, who makes his headquarters in the James Building, Chattanooga.

Western Textile Products Co., Memphis, Tenn., has started operations on fourth floor at 59 South Second St., manufacturing trimmings and linings for men's clothing, etc. A. A. Sippel is manager.

Du Pont Rayon Co. has announced plans for expansion of its Ampthill plant, near Richmond, to permit the manufacture of cellulose film.

Viscose Co., Parkersburg, W. Va., has erected an acid reclaim plant and a soda reclaim plant.

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Rayon-Silk Financial

Edward Bloom Rayon & Silk Mills Co., Inc., has been chartered to take over and liquidate the New London and Putnam, Conn., plants of Edward Bloom Co. The latter will continue as a converter.

Haskell Silk Mill, Westbrook, Me., is starting up. New machinery has been purchased and installed, the mill has been put in order. A New York office was recently opened.

Columbia Ribbon Co., Paterson, N. J., is being reorganized under Section 77-B of the Federal Bankruptcy Act.

Celanese Corp. of America made a gross profit in 1935 of $8,318,894 which after deductions, yielded a net of $4,057,227, according to an amendment that the company has filed with the Securities and Exchange Commission.

North American Rayon Corp. on Sept. 22 reported an unaudited net profit of $1,258,732 for the first 36 weeks of 1936. The company declared a quarterly dividend of 75c per share on the outstanding $50 par value prior preferred stock.

Schaeffer & Max, Allentown, Pa., has purchased the former silk weaving plant of J. K. Eagle & Co. at Phoenixville, Pa.

Myerstown (Pa.) **Textile Co.** land and buildings have been sold to Edwin R. Noll for $100 subject to liens of $87,704.

TEXTILE WORLD'S

Knit Goods Digest

THE personal message addressed last month to members of the National Association of Hosiery Manufacturers by President William H. Gosch is noteworthy for its frankness. "Instead of blaming everything and everybody else for an unhealthy market," he tells his industry, "management itself has the responsibility of determining its own policy, including the decision of whether to price at a profit or at a loss."

Again, Mr. Gosch points the way to constructive action when he says: "To increase hours beyond forty a week, to run more than two shifts, to lower wages and ignore fair trade provisions, are unsound and will not cure our ailments."

This is industrial leadership of a high type. It merits affirmative response from the membership.—*Editor.*

Wage Issue Delays Hosiery Agreement

The hopes expressed early last month by trade leaders that the Philadelphia hosiery agreement would be renewed without difficulty, were a bit too hasty, it seems. During September the union shop manufacturers in the Full-Fashioned Manufacturers of America, Inc., laid before the American Federation of Hosiery Workers 34 demands which have proved a stumbling block to settlement. Negotiations continued through the month but when October opened no basis of understanding had yet been reached.

The manufacturers ask, among other things, for a provision in the contract permitting them a parallel wage cut if important open shop hosiery mills reduce wages; they further request, if the union refuse this concession, that an impartial chairman be selected whose decision would be final. Various wage readjustments for certain types of work also are sought by the manufacturers. Strong resistance to these demands developed during the month among local unions which served further to impede the progress toward a settlement.

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Goodbye, Depression!

Knit goods employment is now definitely on a pre-depression basis. According to figures issued by the U.S. Bureau of Labor Statistics the total personnel in the knit goods industry in May, 1936, was approximately the same as in May, 1929. The industry for the purpose of the survey is defined as including hosiery, underwear, outerwear and knit fabric divisions.

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Southern Seamless Group Meets

The primary purpose of the recent meeting of the Seamless Division of the Southern Hosiery Association at High Point, N. C., was to seek a solution to several problems which have been troubling the industry for a long time, and not to discuss labor or wage policies, according to Taylor R. Durham, secretary of the association. Some of the topics brought up at the meeting were as follows:

1. *Packaging.* Common practice is to include cost of package, bands, tickets, etc., in the market price of hose. However, some buyers take advantage of this by demanding special lithographed or printed packages at two or three times the cost of the ordinary container, the extra cost to be absorbed by the mill. A committee was appointed to investigate this matter.
2. *Samples.* Some buyers demand discounts on samples which actually cost more to manufacture than regular goods. Also, excessive quantities are often requested. It was agreed that in the future samples would be furnished on a basis of regular cost, with the mill furnishing extra labor and time and the buyer furnishing boards and other material going into the sample. In connection with this, it was decided that no more samples would be sent out on consignment or memo as some buyers have a habit of returning these at the end of the season.
3. *Mislabeled Goods.* Certain unscrupulous buyers demand that the mill mislabel goods so as to make them appear of a higher quality than actually is the case. It was agreed that this practice must be stopped, with the help of the Federal Trade Commission, if necessary.

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Strike at Berkshire

Charging that Berkshire Knitting Mills, Reading, Pa., the country's largest manufacturer of full-fashioned hosiery, was operating below code standards on wages, hours and other points, the American Federation of Hosiery Workers called a strike at the plant, effective Oct. 1. The Berkshire company employs approximately 5,800 workers. The first day of the strike was marked by disturbances in which two dozen persons were hurt, and subsequently state troops were ordered to the scene by Gov. Earle on request of Sheriff Cook. Late the same afternoon Hugo Hemmerich, general manager of the mill, stated that 90% of the employees were at work.

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Underwear Sales Ahead

The knitted underwear industry entered October in a strong position thanks to active placing of both spot and advance orders. Leading manufacturers reported that September sales were 12 to 18% above those of the same month in 1935. Early demands for spring 1937 lines has been encouraging,—so encouraging indeed, that some knitters forecast a possible shortage and stiffer prices later in the fall.

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Hosiery Sales Still Above Production

The National Association of Hosiery Manufacturers reports that the seasonal upswing in demand for hosiery began at a good pace in August. Shipments during that month amounted to 11,155,905 doz. prs., a gain of 1,834,318 doz. prs. or 19.7% over July, and an increase of 1,469,713 doz. prs. or 15.2% over August, 1935. For the first eight months of 1936, shipments totalled 76,448,657 doz prs., or 10.1% more than during the same period in 1935. All branches shared variously in the gain.

HOSIERY SHIPMENTS BY MAJOR BRANCHES
(Dozens of Pairs)

Type of Hosiery	First Eight Months 1936	First Eight Months 1935	Per Cent Increase 1936 over 1935
TOTAL, all types	76,448,657	69,408,728	10.1
Women's full-fashioned	21,917,783	21,010,587	4.3
Women's seamless, excl. wool	7,931,153	6,677,379	18.8
Men's half-hose, excl. wool	22,043,373	20,482,971	7.6
Children's and infants' hosiery*	4,071,044	3,647,464	11.6
Anklets	13,423,705	11,462,090	17.1
Cotton bundle goods	2,594,991	2,289,211	13.4
Ribbed goods	2,575,645	2,002,916	28.6
Woolen goods†	1,890,963	1,836,110	3.0

* Boys' and infants' socks, children's ¾ flat and ¼, boys' golf hose.
† Women's and men's seamless wool, men's golf hose, woolen bundle goods.

Production in August remained below shipments, bringing about general reductions in stocks on hand. Production in August, 1936, amounted to 10,110,514 doz. prs. as compared with shipments of 11,155,905 doz. prs. Total stocks at the end of August, 1936, amounted to 19,929,624 doz. prs., which was 1,045,391 doz. prs. less than at the end of the preceding month. In line with the increased demand for hosiery this year as compared with last, stocks of all types at the end of August, 1936, showed a gain of 718,704 doz. prs. over stocks at the end of August, 1935.

During the twelve-month period ended with August, 1936, total stocks turned over 6.2 times, full-fashioned 6.6 times, seamless 6.0 times. For the twelve-month period ended with August, 1935, total stocks turned over 5.7 times.

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Ocean Co. Joins In N. Y. Exodus

The trend of knitted outerwear mills to move from Metropolitan New York which has become steadily more pronounced in recent months was stimulated in September when Alfred Murphy, president of Ocean Bathing Suit Co., one of the oldest swimsuit companies in the country, announced that his firm was seeking a location outside of that area. The Ocean Bathing Suit Co. was established in Brooklyn, N. Y. in 1883 and at present its plant is located in Manhattan. The present exodus of outerwear mills is understood to have been accentuated by the recent strike in the New York area. Mr. Murphy, however, said his mill had not been involved in that strike and that the transfer was being made on recommendation of engineers and factory experts who made a survey recently.

Hosiery Outlook Shows Improvement

Market reports on the hosiery situation and outlook at the beginning of October were unusually favorable. On the higher-priced lines, numerous mills were sold up through November, and a considerable quantity of Christmas business has already been placed. The relative steadiness of raw silk, permitting some degree of stability in hosiery prices, is viewed as helping materially toward the present firmness and activity in the market.

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Minimum Crepe Hose Twists Established

To protect all legitimate "crepe" constructions and guard the buyer or consumer from low-twist constructions which fall short of offering the crepe qualities expected, the National Association of Hosiery Manufacturers has adopted the following minimum twist requirements for such hosiery:

Recommended Minimum Twist Requirements for Hosiery Designated as "Crepe"

Hosiery, in order to be designated as "Crepe," should be constructed, in the body or boot, of yarn in which the total of the turns in both the initial and final twists is at least—

100 turns per inch for two-thread.
80 turns per inch for three-thread.
60 turns per inch for four-thread.
50 turns per inch for five-thread and over.

At least 50% of these minimum twist requirements should be in the initial twist, which may be either S or Z, or both.

The following are illustrative examples of the above minimum twist requirements:

Two-thread	1-50 / 1- 0	50	1-25 / 1-25	50	1-35 / 1-35	30	1-40 / 1-40	20
Three-thread	1-45 / 1- 0 / 1- 0	35	1-15 / 1-15 / 1-15	35	1-30 / 1-30 / 1- 0	20		
Four-thread	1-9 / 1-9 / 1-9 / 1-9	24	1-16 / 1-16 / 1- 0 / 1- 0	28	1-30 / 1- 0 / 1- 0 / 1- 0	30		

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Industry Briefs.

"Ringless" Trial Off Again—Another postponement of the "ringless" hosiery suit, this time until Jan. 11, 1937, was announced in Philadelphia, Sept. 23, by Federal Judge Oliver B. Dickinson.

Wage Raise Announced—A wage raise of 10% for 900 employes in four mills was announced last month by James A. Huff, general manager of the Rockwood (Tenn.) Hosiery Mills. Similar action was taken by Olga Knitting Mills, Watertown, N. Y.

Garter-Attached Hose—A hosiery novelty of this month is garter-attached hose for men; this number was first offered through retailers by Holeproof Hosiery Co. and later stores announced similar novleties by other mills.

Nolde & Horst Have Birthday Party—The 50th anniversary of the founding of Nolde & Horst Co., hosiery manufacturers was observed last month with a gathering at the Reading, Pa., home of William H. Gosch, president of the firm's selling unit.

Jantzen Plans Sales Drive—Convinced that 1937 will bring further increase in the steadily rising call for bathing-suits, the Jantzen Knitting Mills is planning to extend its advertising and promotional activity for the new season.

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Knitting Mill News

Still River Co., Winsted, Conn., newly-formed affiliate of Worcester Knitwear Co., Worcester, Mass., is installing machinery in a mill at Winsted to manufacture sweaters.

Walton Hosiery Mill, Defuniak Springs, Fla., newly established hosiery mill, the machinery having been moved from a northern city, has begun operating with five hosiery machines and auxiliary equipment.

Williams Bros. Mfg. Co., Rome, N. Y., have just installed a new battery of the latest type Scott & Williams 14-cut rib machines for men's combed yarn athletic shirts in various rib styles and knitted shorts.

Standard Hosiery Mills, Alamance, N. C., has completed installation of five full-fashioned hosiery knitting machines costing $60,000. President John Schoffner has announced 40 to 50 more operatives will be employed.

Black Mountain (N. C.) Hosiery Mill has recently installed additional machines.

A. W. Wheeler & Son, Inc., has leased the three-story Joines building at Brevard, N. C., for manufacture of full-fashioned silk hose. Machinery is being installed and operation expected to begin by the last of November. A. W. Wheeler, of Hendersonville, N. C., who was superintendent of the Chipman Hosiery mills at East Flat Rock, N. C., before purchase by Shipman-LaCrosse Hosiery Co., and his son, George W. Wheeler, will direct operations.

Sterling Knitting Mills, Inc., Hickory, N. C., recently formed with capital of $100,000, has leased former building of Catawba Wholesale Co., near Tenth Street, and will remodel and improve at once for new mill. D. S. Menzies is president; Sterling F. Menzies is secretary and treasurer.

Robbins Knitting Co., High Point, N. C., will be moved to Spruce Pine, N. C., when the new plant there has been completed. C. C. Robbins, Sr., operator, moved the concern from Galax, Va., several years ago. Only about 15 of the 325 operatives will be transferred to Spruce Pine.

Carolina Hosiery Mills, Elizabeth City, N. C., began operations around the middle of September. The new company is manufacturing plain white army hose for the Government, with ample orders to keep the mill busy for four months.

Waldensian Hosiery Mill, Valdese, N. C., has completed the installation of additional machinery.

Richland Knitting Mills, Robesonia, Pa., have just contracted for a one-story addition to their mill.

Dan Boone and **O. N. Norris** began the operation of a new hosiery mill at Chattanooga, Tenn., Sept. 28. A fine gauge infants' and misses' anklets are being manufactured. The new hosiery mill is housed in the one-story building, formerly the Ray-Ser Dyeing Co., and was equipped with modern new machinery. Mr. Norris was formerly president of the Quality Hosiery Mills of Murfreesboro, Tenn., and Mr. Boone has been assistant secretary-treasurer of the Cherokee Mill at Cleveland, Tenn.

May Hosiery Mills, Nashville, Tenn., has leased the looping department of Aycock Hosiery Mills, South Pittsburg, Tenn.

National Hosiery Mills, Ltd., Hamilton, Ont., has completed arrangements for the establishment of a silk and rayon throwing and knitting plant at Richmond, Que. Operations will begin as soon as the installation of machinery is completed.

Ray-Knit Mfg. Co., 214 Bay Street, Toronto, Ont., has leased space in building at King and Bathurst Streets, totaling about 16,000 sq. ft., and will occupy for local mill. Present plant will be removed to new location and additional equipment installed.

Knitting Financial

Adrian (Mich.) **Knitted Products Co.**—Former local mill of this company has been purchased by Hurd Lock & Mfg. Co.,

A. C. Knitting Mills, Newark, N. J., recently organized, have taken over portion of building at corner of New Jersey Railroad Avenue and Johnson Street, and will occupy for new local mill.

American Full-Fashioned Silk Hosiery Co., Paterson, N. J., has filed bankruptcy petition.

Stirling (N. J.) **Knitting Mills, Inc.,** have been organized with capital of $20,000, to operate a local mill. Incorporators include Morris Birenbach and Lucien Nemser. New company is represented by J. Milton Sacks, Railroad Ave., Stirling.

Gem Knitting Mills, Inc., Brooklyn, N. Y., have been organized with capital of $20,000 to operate a local mill. Company is represented by Weberman & Goldstein, 401 Broadway, New York, attorneys.

Hazel Knitting Mill, Burlington, N. C., has been organized and a plant established in the old Foster Hosiery Mill plant in that city. Expenditure for machinery was announced at $50,000. Full-fashioned hosiery will be manufactured.

Denton (N. C.) **Hosiery Mills**—Reliable information from Denton states that no such firm exists there. We had previously reported the firm to be removing thither 47 knitting machines from Asheville.

Carolina Hosiery Mills, Elizabeth City, N. C., have taken over a one-story building on Newland Road, near city limits, and will remodel and equip at once for a new mill unit.

Asher Hosiery Mills, Inc., Graham, N. C., recently organized, plan early operation of new local mill. Property is being acquired. New company is headed by Donald L. Asher, Burlington, N. C.; and Walter D. Barrett and George A. Long, Graham.

Fidelity Hosiery Mill, Newton, N. C., recently purchased by Adrian Shuford, of Conover, N. C., has reopened for manufacture of sample hosiery.

Ambler, (Pa.) **Silk Hosiery Co.** has leased space in the Butler Ave. Bldg. and is installing machines for production of hosiery in the gray.

Frankford (Pa.) **Hosiery Mills** has sold buildings at Adams and Unity Aves., to Adams Builders Supply Co.

Rosal Hosiery Mill, Milroy, Pa., was bought at receiver's auction Sept. 23 by Mrs. Celia Kurtzman, Brooklyn, N. Y., for $10,400. She is sister to Mrs. Goldstein, half owner of the property.

Bambach Hosiery Mills, Philadelphia, Pa., recently organized, have leased space in building at 77 East Wister Street, about 4400 sq. ft., and will occupy for new local knitting mill.

Howard Knitting Mills have been established at Howard St. and Lehigh Ave., Philadelphia, Pa., under the management of P. Weiner, 1911 North 7th St., and Louis Sitkoff, 5415 Chester Ave.

Onyx Knitting Mills have been established at 26th and Reed Sts., Philadelphia, Pa. Principals of the concern are Meyer J. Peterzell, 30 Latham Park, Melrose Park, Pa., Abram R. Peterzell, Chateau Crillon, and Paul E. Peterzell, 7708 Woodlawn Ave., Melrose Park.

Windsor Hosiery Mills, Philadelphia, Pa., were auctioned for $245,000 subject to a $65,000 mortgage. Purchaser is North American Lace Co. Equipment includes 120 f.f. machines.

May Hosiery Mills, Nashville, Tenn., have arranged for lease of looping division at plant of Aycock Hosiery Mills, South Pittsburg Tenn., and will operate the plant in the future.

TEXTILE WORLD'S

Processing Digest

PURCHASERS of textiles are growing more and more conscious of what they can expect in the way of serviceability. Some companies are going much further than half way in meeting this more discriminating consumer-demand, and are developing new products and new processes greatly superior to those available a few years ago. There still is a great deal to be done in the modification or improvement of processing methods to give textiles those properties which are most desirable for consumer use. In many instances, no elaborate research is necessary; only a few experiments such as can be carried out in any modern plant may suffice.

A case in point is the finishing of hosiery. A Bureau of Standards report some time ago summarized a series of tests which showed that different finishes on hosiery have widely different effects on the durability and elasticity of the stocking; and that the application of certain finishes would sharply increase the wearing quality of hosiery. We have yet to learn of a hosiery dyer who has attempted to capitalize on the implications of the latter finding.

We do not expect every finisher to rush out and secure the services of a Ph. D. in home economics—although it might not be a bad idea at that—but we are confident that if the finisher would give a little more thought to the consumer viewpoint, he would find it well worth while.—*Editor.*

Lusterized Cotton

Further details regarding a new process for lusterizing cotton which was mentioned briefly in our July issue have been made public recently. This process, which is said to make cotton as lustrous as silk, is the result of experiments carried out by T. W. Holt, director, New Textiles, Ltd., Wellington Mill, Hazel Grove, England. Lusterized cotton made by that process is now being supplied to a number of spinners under the name Nucosheen. It is stated that the treatment of the cotton is partly mechanical and partly chemical and that the cotton fiber is rendered translucent, so that it closely resembles silk in feel and in appearance under the microscope. The cotton is opened and cleaned in the ordinary way up to the process of picking. The laps from the picker are then taken to another machine, wound on to a roller and treated chemically, and then passed through a drying range and other machines specially designed for the purpose. The laps thereafter are carded and the product is spun into yarn in the usual way on standard cotton spinning machinery.

If it is desired to mix silk (which must be cut to approximately the staple length of the cotton), or staple fiber with the cotton, the treated cotton and the silk or staple fiber are mixed on an apron-feed picker. The subsequent operations up to spinning are carried out in the ordinary way.

The treated cotton is said to be highly absorbent and to have a very high affinity for dye, requiring about 40% less dye than ordinary cotton. A further advantage cited is that the fibers gain in strength and that the yarns may have a slightly lower number of turns per inch, which will impart a higher luster to the yarns.

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Explains British Finishing Control Plan

Last month, during a visit to this company, W. Ewing, of the Bradford (England) Dyeing Association, discussed with several groups of American finishers the plan proposed to control redundant or surplus cotton and rayon finishing machinery in Great Britain. The scheme calls for a loan of £1,500,000 from the British Industries Development Board to purchase about 25% of existing capacity. Repayment would be made over a 15-year period by means of an assessment of not over 4% on the turnover of each company based on the years 1932 to 1935. Quotas for each firm would be based on its production in those basic years and provision would be made for the sale of quotas. The scheme calls for the allocation of 7½% of the purchase price of surplus equipment to compensation of displaced employees. Legislation will be sought to make the plan effective throughout Great Britain and Northern Ireland.

The consensus of American finishers is that the British scheme conflicts with our anti-trust laws and, hence, is not applicable in its entirety in this country, it appears. These discussions of it have, however, rekindled interest in the problem of surplus finishing equipment and the plan for its control advocated a few years ago by the National Association of Finishers of Textile Fabrics.

Finishers Reelect Scott

At a recent meeting of the National Association of Finishers of Textile Fabrics, Albert L. Scott was reelected president. Other officers are: Daniel M. Bates, Cold Spring Bleachery, first vice-president; Howard R. Gessner, Millville Mfg. Co., second vice-president; and Alice Moore, secretary-treasurer.

On the board of directors are: George Summersby, Bradford Dyeing Assn.; Philip A. Johnson, Aspinook Co.; Leonard S. Little, United States Finishing Co.; Richard W. Arrington, Union Bleachery; John W. Manley, Sayles Finishing Plants; J. K. Milliken, Mt. Hope Finishing Co.; Robert R. West, Riverside & Dan River Cotton Mills; L. H. Ballou, Slatersville Finishing Co.; George D. Harrison, Lewiston Bleachery; Thomas Stevenson, Apponaug Co.; A. L. Green, Farr Alpaca Co.; Wilfred Ward, Providence Dyeing Bleaching & Calendering Co.; W. F. Smith, Dutchess Bleachery; Richard Borden, Fall River Bleachery; and A. E. Colby, Pacific Mills.

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Sulphonators' Outing

Members of the Sulphonated Oil Manufacturers Association and guests were present at a fall outing and golf tournament of the Manufacturers Country Club, Oreland, Pa., Monday and Tuesday, Sept. 28 and 29. Informal dinner was held Monday night, golf Tuesday morning, followed by luncheon. More than 50 attended.

At the conclusion of the luncheon, the following prize winners were announced: Low net, Canfield Jordan; guest low net, L. S. Lloyd; second low net, member, R. L. Jones; low gross, member, C. M. Morrison; kickers for members, D. S. Whiteman; kickers for guests, A. A. Underwood; second low net, guests, M. D. Reeser; third low net, member, H. A. Metz; fourth low net, member, A. J. Royce; highest gross score, member, J. M. McChesney; highest gross score, guest, I. M. Cholbeth; attendant not playing golf, Frederick Babcock; door prize, guest, J. M. McCarthy; door prize, member, A. B. McCarty; fifth low net, member, L. L. Grombacher; sixth low net, member, J. C. Cadmus; highest net score, member, R. W. Bjork; birdies, Gus Olson; highest score on one hole, T. Atkinson; best score, night game, A. E. Jones, Jr.; best score for bald heads, W. J. Thorn; loving cup for all round excellence, L. O. Koons.

The committee in charge consisted of Fred C. Scholler, chairman, A. E. Jones, Jr., C. P. Gulick, and John C. Wolke.

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Detergent and Emulsifier

Development of a new compound, which is said to have excellent detergent action combined with the ability to form stable emulsions of water and oils, is announced by Nuodex Products, Inc., Elizabeth, N. J. This material, known as Nusope 48B, is a neutral, free-flowing liquid with a solids content of 85%.

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Avirol to Avitex

A change in the name of Brilliant Avirol to Avitex is announced by the organic chemicals department of E. I. duPont de Nemours & Co., Inc. The change is in the name only, the product

being the same line of finishing agents derived from the higher fatty alcohols. The new names corresponding to the old are: Avitex SF, formerly Brilliant Avirol L-142; Avitex AD, formerly Brilliant Avirol L-144; Avitex W, formerly Brilliant Avirol L-168; and Avitex C, formerly Brilliant Avirol L-200.

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Association To Meet

A meeting of the New York Section, American Association of Textile Chemists & Colorists will be held Friday evening, Oct. 23, at the Swiss Chalet, near Paterson, N. J.

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New Textile Chemicals

Two new textile auxiliaries, Merpol B Pat. and Merpol C Pat., have been placed on the market by the dyestuffs division of E. I. duPont de Nemours & Co. Inc., Wilmington, Del. Merpol B is of particular interest as a detergent or cleansing agent with good emulsifying properties, and Merpol C as an effective penetrant with unusually good solvent properties. The former is recommended by the manufacturer for kier-boiling or in boil-off operations, as a dyeing assistant in circulating-type machines, and as a penetrant for dyeing hard-twisted wool carpet yarns. It is stated that it readily removes and emulsifies the lubricants used in the processing of acetate fabrics. Merpol C is said to possess exceptionally strong wetting, penetrating, leveling, dispersing, and homogenizing properties, and it is recommended for wetting-out, boil-off operations, kier-boiling, and as a dyeing assistant in the application of all types of dyes. When used for these operations, it shows a combined emulsifying and solvent action. Merpol C is used also to assist in producing bright, clean dyeings of the Naphthanil type of colors when used in the prepare bath.

PROCESSING IN THIS ISSUE

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Processing Plant News

Hampden Specialty Co. is preparing the No. 5 mill lower floor of the West Boylston plant in Easthampton, Mass., for occupancy and many machines are already in place.

Gallia Printing Co., Inc., Clifton, N. J., has set up a screen printing plant on Greenwald St. where it occupies 27,000 sq. ft. space. President of the company is Michael Boeuf, who for 26 years was head of block and screen printing department of United Piece Dye Works. Treasurer is J. F. Antignet, who was with United for 17 years, being superintendent of Mill A from 1930 to 1936.

Davidson (N. C.) Cotton Mills have added a dyeing division in order to offer dyed yarns.

North Carolina Finishing Co., Salisbury, N. C., has let general contract to Potter & Shackelford, Inc., Greenville, N. C., for one-story addition, for which superstructure will begin at once. Cost about $55,000, with equipment.

Westminister Mills Ltd., New Westminister British Columbia, is erecting a new dry kiln at a cost of $8,000.

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Processing Financial

Hodges Finishing Co., East Dedham, Mass. Equipment of this plant was bought at mortgagee's sale for $23,200 by Crescent Machine & Supply Co., Fall River, Mass., for resale.

Arnold Print Works, North Adams, Mass., has had time extended to Nov. 16, for filing its reorganization plan under Section 77B.

Windsor Print Works, North Adams, Mass., is to be surveyed by order of the court referee to determine whether it shall be sold or used in conjunction with the reorganization of **Consolidated Textile Corp,** under Section 77B. An offer of $300,000 had been made for Windsor.

Cretona Print & Dye Works, Inc., Clifton, N. J.—Sale of this property has been made by John W. Griggs, trustee in bankruptcy, to the Reconstruction Finance Corp., Washington, D. C., only bidder for assets at recent public auction, securing mill and machinery, real estate and other holdings at price of $385,000. The RFC has a mortgage on property of $450,000.

Passaic (N. J.) Print Works, in bankruptcy, has been bid for by Emanuel Shavick and Samuel Cooper appearing for the Liquidation Corp. Bid is $175,000 for all assets free and clear of encumbrances. R. William Morrell is trustee in bankruptcy.

Gatti Silk Dyeing Co., Paterson, N. J., has been placed in hands of W. V. Rosenkranz, receiver.

Hawthorne Piece Dye Works, Inc., Paterson, N. J., has been organized with capital of 100 shares of stock, no par value, to operate a dye and finishing mill in the Hawthorne district, near Paterson. New company is represented by Emil Roetheli, Fifth Avenue, Paterson, N. J., attorney.

Sterling Dye Works, Paterson, N. J., have changed company name to Acme Dye Works in order to avoid conflict with the name used by another company. Officers and personnel of Acme remain the same.

Vermorel Piece Dyeing Co., Inc., Paterson, N. J., has been organized with capital of 1000 shares of stock, no par value, to operate a local dye and finishing mill. New company is headed by Charles K. Vermorel and Louis Andrews. It is represented by Saul M. Mann, First National Bank Building, Paterson, attorney.

Weidmann Skein Dyeing Co., Inc., Paterson, N. J., has been chartered with capital of 100 shares of stock, no par value, to operate a local dye and finishing mill, with print division. Incorporators include Melvin Robbins and Alfred Appel. Company is represented by Emil Roetheli, Fifth Avenue, Paterson.

Applique Textile Print Works, Inc., New York, N. Y., has been organized with capital of 99 shares of stock, no par value, to operate a textile dye and print works in the metropolitan area. New company is represented by Groh, McCourt & Tripp, 475 Fifth Avenue, New York, attorneys.

Cheslyn Piece Dye Works, Inc., has been chartered in Chester, Pa., to engage in the dyeing of threads and fabrics for the textile industry. Principals of the new concern are Malvern Fink, Harry L. Osterweis and Melvin Robbins.

Prospect Dye Works, near Reading, Pa., has been sold for $50,000 to Bowers Battery Mfg. Co., of Fleetwood.

Quidnick (R. I.) Dye Works have recently arranged financing through loan of $12,000, fund to be used for equipment installation at mill.

Palmetto Print Works, Greenville, S. C., has open sales offices at 40 Worth St., New York. Charles A. Schuster will be in charge.

Holdsworth Co., Ltd., Montreal, Canada, is the purchaser of the dyeing and finishing equipment of Middlesex Mills, London, Ontario, which the company has moved to Toronto for operation as a branch of the Montreal business. In this column in August Holdsworth & Co., of Toronto, was incorrectly mentioned as the purchaser.

Current window display, featuring Du Pont dyes for wool, in Du Pont reception room Empire State Bldg., New York. Fabrics by Kent Mfg. Co. Dyes used in bathing suits are featured for brilliancy of shade and fastness to salt water and light; dyes in men's suitings, for fastness to light and dry cleaning; dyes in women's dress goods and coatings, for brilliancy of shade and fastness.

TEXTILE WORLD'S

Engineering Digest

"THE sun is at my window, making faces at me." At least it may be, but the textile operative of the future will not know it—that is, if certain recent developments herald a new trend in textile-mill construction—that toward windowless buildings.

Certain scientific advantages have already been proved—and must be given due weight. However—at the risk of being considered old-fashioned—we feel the long-term effect on the morale of the operatives, season through season, should be given most careful study also. In saying this, we are prompted entirely by our own personal reaction: a feeling that we would not like to work in a plant where we could not "look out." We would even prefer the view of the brick wall of the next-door plant to no view at all.

Maybe we're just queer.—*Editor.*

"Stopping Time" Test For Textile Machinery

"How can I be sure that I am using the right amount of oil?," is a question that is often asked by textile mill operators. The answer, too often, is made so complex that it cannot be understood. In fact, in many instances the oil salesman himself doesn't know.

The "stopping time test" is an excellent one for determining proper lubrication. The test is very simple. For instance, if you wish to determine whether or not a given steam engine is properly lubricated, just pull out your watch and take the time required for the engine to come to a stop after shutting off the steam. The longer the stopping time, the better.

It is plain that if a flywheel weighs, say 2,000 lb., it has a definite amount of energy stored in it when running at normal speed. Therefore, when steam is suddenly shut off, an equal amount of energy is dissipated every time the engine stops. With all conditions the same, then, an exactly identical length of time will be consumed in stopping every time the throttle is closed. By noting the stopping time every night and by altering the quantity of lubricant fed to the engine every day, the proper quality and amount of lubricant can easily be determined in a period of time.

If the engine drives machinery, as engines generally do, try the stopping time test with and without the load. With the load, the stopping time, of course, is much less than without the load.

Motor-driven, diesel engine-driven, and turbine-driven textile mills can often be tested in the same way. The flywheel effect of pulleys on line shafts and on the machinery itself is sometimes sufficient to cause the machinery to operate for some time after the power is shut off. It is logical that as long as there is a difference in stopping time, all other conditions being the same, there is a difference in lubrication. The thing to do is—make the stopping time as long as possible!

Outstanding Exhibits At Metal Congress

Among the more interesting exhibits to be featured at the Eighteenth National Metal Congress scheduled to be held Oct. 19 to 23, at Cleveland, Ohio, are the following:

Recent developments in oxy-actylene processing will be stressed by Linde Air Products Co., with special reference to the latest type cutting machines. Also, several new acetylene generators introduced during the last few months will be shown, along with a new line of Oxweld oxygen and acetylene regulators.

Haynes Stellite Co. will demonstrate a J-Metal tool cutting a steel billet while the tool is kept at a red heat by means of an oxy-acetylene flame. Other tools and pieces of equipment made from this unique alloy and other metals will be on display.

Lincoln Electric Co. plans to show its new dual continuous control introduced on the new Shield-Arc S.A.E. welder. This device is designed to make possible the selection of any degree of arc penetration for each and every current setting and is said to be a distinct advance in welding technique. The latest developments in welding electrodes and other equipment will also be exhibited.

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Power Show Expected To Be Most Successful Since 1929

Preparations for the Twelfth National Exposition of Power and Mechanical Engineering to be held, Nov. 30 to Dec. 5, at the Grand Central Palace, New York, have advanced to a state where the most successful exposition since 1929 is assured, according to officials. Three floors have been reserved for the event and much space has been sold to exhibitors. Machines and products on display will include power generating machinery, plant equipment of every type, and a complete range of mechanical and industrial accessories.

An Idea in Fan Ventilation

Perhaps some of your fans are discharging through ducts or pipes, no larger than the fan-discharge opening, into still air, dust chambers or inclosed spaces. You may have noticed the high velocity of the outgoing air when walking by the opening. If so, there is waste here—of power or potential capacity. To overcome this, the discharge pipe should be enlarged by means of a long taper to two or three times its original area. The velocity is thereby decreased in the same ratio and "regain" occurs, resulting in a lowering of the net head against which the fan works. Increased capacity will result if the speed is allowed to remain the same, or the speed may be reduced to a point where the capacity is the same. In the latter case, a substantial power saving will result.

For example, a fan with a 47x72-in. outlet, rated at 35,000 cu.ft. of air per min. at 329 r.p.m. and requiring 13.6 hp. against 1.25 in. static pressure, will increase its output 7%, or to approximately 37,500 cu.ft. per min., if a cone is added, doubling the area in a length of 10 ft. Or, on the other hand, the fan can be slowed to 312 r.p.m. and still deliver 35,000 cu.ft. per min., with an expenditure of only 12.1 hp. In other words, increasing the area should result in a 5 to 10% increase in capacity or a 5 to 10% saving in power.—M. S.

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World Power Conference At Washington

Power experts from over 60 nations gathered in Washington, D. C., last month to take stock of the available sources of power for running the world's machines, heating its homes, and lighting its cities. Methods of putting more kilowatt hours of electricity at the disposal of every individual were discussed with a view of the rapidly dwindling stores of coal and oil. The conference demonstrated as never before, said delegates, that the world is conscious of the political and social importance of power. A number of tours of power plants were made.

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Safety Councils Formed in N. C.

Safety councils are being organized in various sections of the South by representatives of industrial plants. The North Carolina industrial commission is giving active support to the formation of these groups as a means of reducing accidents among employees. Blue Ridge Council was recently organized at Forest City, N. C., with Ivy Cowan, of Stonecutter Mills, Spindale, chairman, and W. L. McBrayer, of Florence Mills, Forest City, secretary. In South Carolina, the Third District Council has been formed with W. J. Erwin, vice-president of Republic Cotton Mills, Great Falls, chairman. Other officers are C. L. Still, superintendent of the Fort Mill plant of Springs Cotton Mills, vice-chairman, W. P. Sibley, secretary of Arcade Cotton Mills, Rock Hill, vice-chairman, and T. B. Jackson, secretary of Industrial Cotton Mills, Rock Hill, secretary. Over 300 representatives of industry in upper South Carolina were present for the meeting.

Arcade Cotton Mills, Rock Hill, vice-chairman, and T. B. Jackson, secretary of Industrial Cotton Mills, Rock Hill, secretary. Over 300 representatives of industry in upper South Carolina were present for the meeting.

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Method for Estimating Horsepower of Motors

In a bulletin issued recently by Lincoln Electric Co., Cleveland, Ohio, is described a simple and unique method of estimating the horsepower of a motor at any current from easily obtainable data. The procedure is as follows:

To obtain an estimate of the horsepower of a motor requires only these simple instruments: voltmeter, ammeter, and speed counter. The data necessary include the power factor and the efficiency at various loads. These data may be obtained from the motor manufacturer or estimated from any published motor standards. Absolute accuracy in calculating these factors is not essential for the purpose of estimating the motor horsepower. For example, a variation in efficiency of 2% or 3% is an important item to consider when selecting a motor, but this amount of variation will not materially affect the horsepower estimate.

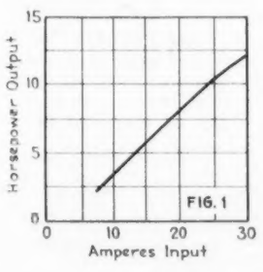
Calculate the currents (I) for various loads. This can be done by knowing the horsepower power factor and efficiency for each load. For example, assuming the following, as one point on the curve:

$$I = \frac{5 \text{ Hp.} - 87\frac{1}{2}\% \text{ Eff.} - 89\% \text{ P.F.}}{1.96 \times 5} = \frac{}{.87\frac{1}{2} \times .89} = 12.5$$

Calculate current for other values of horsepower; for example 1¼, 2½, 3¾, 5, and 6¼ horsepower power factor and efficiencies are generally given at ¼, ½, ¾, 4/4, 5/4 loads. These can be plotted as a curve, horsepower against amperes, or may be tabulated. Then, by measuring amperes, making sure the voltage is correct, and knowing the above values for a particular motor, the horsepower output may be easily determined. The following tabulation serves as an illustration for a 10-horsepower motor:

LOAD	P.F.	EFF.	AMPERES
2.5	70	81	7.9
5	85	86	13.4
7.5	90	89	18.2
10	91.5	89	24
12.5	92	87	30.5

By plotting the values of load and



amperes a graph for a 10-horsepower motor will appear about Fig. 1.

A graph may be plotted for each motor and from the reading of amperes, the horsepower for any current may be determined, or, if an ammeter is in circuit, its scale may be marked in horsepower.

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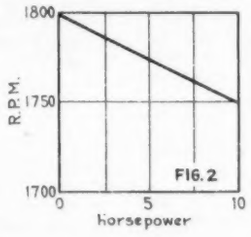
Direct Pressure Boiler Feed	100
Fire Fighting Tool	100
Small Centrifugal Pumps	100

In cases where voltage is constant and only a speed counter is available, the load may be obtained as follows, providing the load does not vary while speed is being taken: Where possible speed readings should be obtained when taking current readings, thus a horsepower speed curve may be plotted directly from these readings. If this is impossible, the full load speed should be



obtained from the motor name plate or from the motor manufacturer. The value should be plotted to large scale, as shown in Fig. 2.

Above the full load the speed may drop off very rapidly. Therefore, care must be taken when estimating above this point. Reduce the reading obtained by extending line straight. For 1¼ load this reduction may be 5%, and is approximately correct for a well-designed motor.

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Engineering Trade News

Republic Steel Corp., Cleveland, Ohio, announces the appointment of Frank J. Laskey as general purchasing agent, according to Carl A. Ilgenfritz, manager of purchases and raw materials. Robert E. Sherratt was named assistant general purchasing agent. William Hogenson, Jr., has been named special representative on Toncan iron enameling stock. Republic Steel calls attention to the fact that this is the junior Mr. Hogenson and not his father, the latter being head of Chicago Vitreous Product Co.

Reliance Electric & Mfg. Co., Cleveland, Ohio, announces that K. S. Lord, southern manager, has transferred his headquarters from Birmingham, Ala., to Greenville, S. C. A. L. Lemon will represent the company in Birmingham.

American MonoRail Co., Cleveland, Ohio, manufacturers of overhead cleaning equipment, have opened a southern office at 509 Masonic Temple Building, Greenville, S. C. Curran S. Easley is in charge.

Bristol Co., manufacturers of recording instruments, is opening a sales office in Greenville, S. C. G. R. Atkins will be in charge and will cover the Carolinas, Georgia and eastern Tennessee territory.

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Engineering Mill News

West Point Mfg. Co., Shawmut (Ala.) Division, is erecting a new testing laboratory of brick, one story, 41 x 70 ft. Batson-Cook has the contract. Cost is placed at $16,000.

Frissell Fabric Co., Middletown, Conn., has purchased new Diesel engine equipment from the Worthington Pump & Machinery Co. at a cost of about $10,000.

Millbrook Woolen Mills, Yantic, Conn., closed down for ten days in September while repairs were made on the main engine. Four two-ton iron plaques were installed to form an engine base. The company has awarded general contract to Fred T. Ley & Co., Inc., Springfield, Mass., for a dam and head gates. Charles T. Main, Inc., 201 Devonshire St., Boston, Mass., is engineer for the project.

Dunson Mills, LaGrange, Ga., is repainting the interior of the mill building and reroofing it. Houses in the village are being repainted. Newman Construction Co. is handling the work.

Martha Mills, textile division of the B. F. Goodrich Co., Silvertown, Ga., have begun work on between 75 and 100 homes for operatives for the additional personnel the company will employ when the new mill addition has been completed.

Celanese Corp. of America, Cumberland, Md., has awarded contract for erection of a building to house a $300,000 turbine generator unit.

Wood Worsted Mills of American Woolen Co., Lawrence, Mass., is building a new water filtration system at cost of $150,000. A storage tank of 1,500,000 gal. capacity will be provided.

Cocheco Woolen Mfg. Co., East Rochester, N. H., is being electrified throughout. Other improvements include replacing of wooden floors with cement.

Gonic Mfg. Co., Rochester, N. H., has awarded contract for installation of a new boiler plant to the Babcock & Wilcox Co. The new equipment will cost between $50,000 and $60,000. A new elevator has been installed and addition to dye house made.

High Falls (N. C.) Mills Co. is constructing a new power house. The mill operates on water and electric power.

American Enka Corp., Enka, N. C., has awarded the contract for building a gymnasium to Potter & Shackleford, Greenville, S. C., and work on the structure has been begun. It will be two stories in front and one story for the gymnasium proper portion, 110 x 130 ft. It will have a seating capacity of 4,500.

Hamilton (Ont.) Cotton Co., Ltd., has awarded general contract to Frid Construction Co., Ltd., 128 King Street, for addition to power house, on which work will be placed under way at once. New boiler units and other equipment will be installed. Entire project will cost over $75,000. H. G. Acres & Co., Ltd., Ferry Street, Niagara Falls, Ont., are engineers.

FREE FOR THE ASKING—

READERS interested in the catalogs and other useful literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, N. Y.

Monel Metal

International Nickel Co. Fall issue of *Process Industries Quarterly* containing articles showing application of Monel metal in the Kent Hygroliting system. Also, technical discussion of the resistance of Monel and nickel to dilute hydrochloric acid as used in dyeing and tanning.

Ventilation

Swartwout Co., Non-technical bulletin describing ventilation for industrial and commercial buildings. Discusses reasons for ventilation, methods, air requirements, estimating ventilator requirements, and various types and applications of Swartwout ventilators.

Automatic Pressure Compensation

Foxboro Co., Bulletin describing new automatic pressure compensation device now available in practically every type of Foxboro flow meter for use with compressible fluids. Device is said to permit reading rate of flow direct without having to calculate for errors due to fluctuating pressures. Also, mailing piece devoted to recording thermometers.

Fire-Fighting Equipment

Pyrene Mfg. Co. Bulletin describing new development in fire-fighting equipment, which consists essentially of a water nozzle designed to manufacture 300 to 400 gal. foam per minute mechanically rather than chemically. The nozzle combines a special patented solution with air and water at the rate of 350 gal. of foam to 1 gal. of solution. The nozzle will discharge either foam for flammable liquids or water for ordinary combustibles as desired. One man can operate the extinguisher.

Water Softener

Cochrane Corp. Publication 2059 describing deaerating type of hot-process water softener with two-page diagram and chart of operation. Device is designed to combine deaerating and softening elements so as to give a simplified arrangement, low installation and maintenance cost, small space requirements, and complete protection of boiler and economizers from scale and corrosion.

Unit Heater

Modine Mfg. Co. Folder describing new Textype unit heater specially designed for use in textile mills where the ordinary type heater becomes clogged due to foreign matter in the air. Manufacturer asserts that special fin construction eliminates clogging, insures constant heating capacity, saves 13½ to 25% on fuel costs, and reduces maintenance costs.

Loom Harness Equipment

Steel Heddle Mfg. Co. Unique 26-pp. booklet containing "Interesting Items About Loom Harness Equipment — Clipped From the Leading Trade Journals." Also folder showing various types of flat-steel repair heddles.

Dyers' Conversion Table

Ciba Co. Conversion table for dyers simplifying the matter of expressing decimal percentages in ounces and grains per 100 lb. Printed on strong cardboard and suitable for hanging in stock or drug room. Also carries list of Ciba dyes.

Spinning Machinery and Novelty Yarns

Saco-Lowell Shops. August issue of *Saco-Lowell Bulletin* containing a number of articles of interest to mill executives and supervisory force. Lead article is devoted to adaptability of Roth spinning, and cites a number of specific installations where mills have profited from the use of this machinery; viz., Clyde Fabrics, Inc., Newton, N. C., Dana Warp Mills, Westbrook, Me., Swift Spinning Mills, Columbus, Ga., Cross Cotton Mills, Marion, N. C., Wiscasset Mills Co., and Efird Mfg. Co., Albemarle, N. C., several tire fabric mills, and others. Second article describes the Saco-Lowell novelty yarn twister and the construction of fancy yarns. Includes a color photograph of 21 novelty yarns. Another article gives details of two ways to change a cylinder gear based on an actual mill experience.

Coal

Appalachian Coals, Inc. Folder, "Where to Buy ACI Coals," listing the names and addresses of agents and identifying the coals by seams.

Recording Voltmeters and Ammeters

Bristol Co. Bulletin No. 436 covering a new line of round-chart recording voltmeters and ammeters for industrial plants. Models for wall, switchboard, flush panel, pole mounting, and for portable use are illustrated with drilling dimensions. Also, a detailed description is given of the new inverted-type replaceable movement and of the novel design of the pen arm.

Nickel-Alloy Steel

International Nickel Co., Inc. Illustrated Bulletin P-1 discussing the properties and applications of heat-treated, wrought, nickel-alloy steels in sections to about 6 in. in diameter or thickness.

Solenoid Starters

Allen-Bradley Co. Booklet devoted to the Bulletin 709 automatic solenoid starter. Contains an interview with G. O. Wilms, chief engineer of Allen-Bradley Co., in which Mr. Wilms explains in detail the ways in which the new solenoid starter differs from the ordinary clapper-type starter and the advantages of the improved device. Standard starters also shown.

Winding

Universal Winding Co. Bulletin 101 describing advantages of the No. 90 Leesona winders for cotton, wool, rayon, and silk. Contains photographs, drawings, and specifications.

Processing Equipment

Edge Moore Iron Works. Illustrated Bulletin No. 101 describing special tanks, rollers, mixers, kettles, etc., for the processing industries. Equipment made from all types of corrosion-resisting steels.

Steam Turbine Units

Allis-Chalmers Mfg. Co. Bulletin 1179 describing automatic-extraction steam turbine units. Contains many photographs, detailed line drawings, specifications, and descriptions of parts.

Roving and Spinning

Whitin Machine Works. July issue *Whitin Review* containing articles on long-draft roving, spindle bolsters, builder motions, and other technical topics related to cotton manufacturing.

Air Conditioning

Parks-Cramer Co. August issue *Park's Parables*, containing humorous article on air conditioning. Also, psychrometric humidity table suitable for use with a sling psychrometer or other bi-thermometer device where there is an air current passing over the thermometer bulbs at a ratio in excess of 15 ft. per sec. September issue of same containing a comparison between ventilation and automatic air change.

Steel Chairs

Harter Corp. Illustrated catalog No. 36. Discusses importance of correct sitting posture from viewpoint of capacity for work and describes complete line of Harter steel chairs for office and mill purposes.

Dyes

General Dyestuff Corp. Color card "Dyeings Fast to Light on Woolen Yarn." Shows numerous snades produced with acid dyes selected for level dyeing and good fastness to light and gives formulas to produce same shades, as far as possible, in better fastness to washing, perspiration, etc., with Supramine, Supranol, Palatine Fast, and Monochrome colors.

Sulphur Dioxide

Calco Chemical Co., Inc. Booklet on properties and uses of sulphur dioxide in textile and other industries. Describes methods of handling and includes tables of physical properties of liquid and gaseous sulphur dioxide.

Dry Rectifiers

Westinghouse Electric & Mfg. Co. Booklet describing selection and application of Rectox copper dioxide rectifiers for changing a.-c. to d.-c. without moving parts or chemical reaction.

Warp Sizing

Charles B. Johnson. September issue of *Rayon Warp Sizing Specialist* containing article on the use of the Scotch hook reed in sizing rayon warps by the cotton system.

Sizing Compounds

Kem Products Co., Inc. September issue of *Sizing News* containing article on softness and pliability of sized rayon warps and of gray and finished rayon fabrics.

Peterborough, Ont.

City of Peterborough. Illustrated booklet pointing out the advantages of Peterborough as a site for manufacturing plants.

Variable-Speed Transmission

Reeves Pulley Co. Illustrated folder showing various types of controls suitable for use with Reeves variable-speed transmissions.